UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TAKASHI KIKUKAWA, TATSUYA KATO,
HAJIME UTSUNOMIYA, and HIROSHI SHINGAI

Appeal 2008-0664
Application 10/125,476
Technology Center 2600

Decided: March 26, 2008

Before KENNETH W. HAIRSTON, ROBERT E. NAPPI, and JOHN A. JEFFERY, *Administrative Patent Judges.*

NAPPI, *Administrative Patent Judge.*

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 6(b) of the Final Rejection of claims 1 through 5, 12, 14, 15, and 18. We heard the appeal on March 13, 2008.

We affirm the Examiner's rejections of these claims.

INVENTION

The invention is directed to a readout method for optical information medium where the pits are of a size approximate to the resolution limit

determined by diffraction. See page 4 of Appellants' Specification. Claim 1 is representative of the invention and reproduced below:

> 1. An information readout method for an optical information medium comprising an information recording layer having pits or recorded marks with a smallest size P_L and representative of information data, said method comprising:
>
> irradiating a laser beam having a wavelength λ of 400 to 410 nm to the information recording layer through an objective lens having a numerical aperture NA of 0.70 to 0.85 for providing readings of the pits or recorded marks, and the smallest size P_L is smaller than 0.36λ/NA, wherein
>
> when the laser beam is irradiated through the objective lens to the pits or recorded marks, the laser beam has a power Pr of at least 0.4mW.

REFERENCES

Takada	US 4,973,520	Nov. 27, 1990
Takeda	US 6,512,735 B1	Jan. 28, 2003

REJECTIONS AT ISSUE

Claims 1 through 5, 12, and 14 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Takada. The Examiner's rejection is on pages 3 and 4 of the Answer.

Claims 15 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Takada and Appellants' admitted prior art. The Examiner's rejection is on page 5 of the Answer.

Throughout the opinion, we make reference to the Brief (received December 28, 2006), Reply Brief (received May 29, 2007), and the Answer (mailed June 7, 2007) for the respective details thereof.

ISSUES

Rejection of claims 1 through 5, 12, and 14.

On pages 3 through 10 of the Brief, Appellants present arguments directed to the Examiner's rejection of claims 1 through 5, 12, and 14 under 35 U.S.C. § 103(a). Appellants' arguments do not separately address the rejected claims. Thus, in accordance with 37 C.F.R. § 41.37(c)(1)(vii), we group the claims together and treat independent claim 1 as the representative claim.

Appellants argue, on pages 5 through 7 of the Brief, that the Examiner's rejection is in error as the motivation to combine the references is improper. Appellants argue that the Examiner' motivation is "improperly based upon the assumption that the reproduction laser power alone determines the C/N [carrier to noise] ratio and bit error rate taught by Takada." App. Br. 5. Appellants argue that they "are the ones who recognized that the claimed combination of wavelength, numerical aperture, and power parameters can be used to read the claimed pit size having a size slightly greater than the resolution limit of to achieve a higher C/N ratio than the prior art." *Id*. Appellants further argue that the C/N ratio in Takada is due to the use of tin as a component of the recording medium without the beam power being a concern. App. Br. 6. Further, on page 7 of the Brief, Appellants argue that "neither Takeda nor Takada suggest the desirability of combining the claimed parameters as neither Takeda nor Takada describe improving C/N ratio by way of increasing power to increase the interaction between the electric fields of adjacent pits/marks to enable super-resolution readout or any other reason to suggest the combination of their teachings."

App. Br. 7. Thus, Appellants conclude that there is no motivation to combine the references as asserted by the Examiner.

On pages 7 and 8 of the Brief, Appellants argue that one skilled in the art would not have had a reasonable probability of success absent hindsight reasoning. Appellants argue that the super-resolution readout methods require strict control and that power level changes affect the aperture settings. App. Br. 7. As such, Appellants argue that, in light of the unpredictability of the art, one would not have a reasonable probability of success by selectively combining teachings from the references.

Further, on pages 8 and 9 of the Brief, Appellants argue that the Examiner's combination would change the principle of operation of the prior art. Appellants reason (applying data from the Technical Committee document attached as an evidence appendix to the Brief) that Takada operates with a Numerical Aperture (NA) of 0.5496 to 0.519, and that combining the references would change the principle of operation of Takeda which operates with a NA of 0.85. App. Br. 8.

Appellants' contentions present us with three issues with respect to the rejection of claims 1 through 5, 12, and 14. Whether the Examiner erred in: a) combining Takeda and Takada, b) determining that there is a reasonable probability of success with such a combination, and c) determining that the combination does not change a principle of operation of the prior art.

Rejection of claims 15 and 18.

On pages 10 through 12 of the Brief, Appellants address the rejection of claims 15 and 18. Appellants argue:

> The outstanding final Office Action improperly relies on the general description in the background art at page 2, paragraph 1 of the specification as describing these more detailed aspects of the Applicants' invention. However, the first two paragraphs at the top of page 2 do nothing but describe generalities as to several proposed methods, not the specific details claimed. This is clearly an improper reliance on general statements as to the background art and should be reversed for this reason alone. To the extent that the Examiner intended to rely on either the details of "heat mode" or "photon mode," these methods are separately described at pages 2-4 and not properly incorporated into the rejection.

App. Br. 10.

On page 5 of the Reply Brief, Appellants argue that the admission on page 2 of the Specification is not properly applied to the claims as Appellants did not identify that it was "in this country." Further, Appellants argue that motivation to select one of these modes is lacking from the rejection, and that the admitted prior art does not overcome the deficiencies noted above concerning the combination of Takeda and Takada. App. Br. 10 and 11.

Appellants' contentions present us with the issue of whether the Examiner erred in determining that the Appellants' admission of what is taught by the background art is prior art and in combining the teachings with Takeda and Takada.

PRINCIPLES OF LAW

On the issue of obviousness, the Supreme Court recently stated that "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007). Further, the Court stated "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id. at* 1739.

> When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. . . . [A] court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Id. at 1740. "One of the ways in which a patent's subject matter can be proved obvious is by noting that there existed at the time of invention a known problem for which there was an obvious solution encompassed by the patent's claims." *Id.* at 1742.

Section 102 is not the only source of section 103 prior art, prior art can be created by admissions of the Appellants. "[A] statement by an applicant during prosecution identifying certain matter not the work of the inventor as 'prior art' is an admission that the matter is prior art." *Riverwood Int'l Corp. v. R.A. Jones Co.*, 324 F.3d 1346, 1354 (Fed Cir. 2003) (internal citations omitted).

FINDINGS OF FACT

1. Appellants' Specification states, on page 2:

> Under the circumstances, several methods have been proposed for going over the resolution limit (or diffraction limit) determined by light diffraction. They are generally known as super-resolution readout methods.
>
> The most common super-resolution readout method is to form a mask layer over a recording layer. Based on the fact that a laser beam defines a spot having an intensity distribution

> approximate to the Gaussian distribution, an optical aperture smaller than the beam spot is formed in the mask layer whereby the beam spot is reduced below the diffraction limit. This method is generally divided into a heat mode and a photon mode, depending on the optical aperture-forming mechanism. Spec. 2:1-13.

2. Appellants' Specification cites a Japanese Patent Application and a Japanese Patent as examples of heat mode reading of an optical disc. Appellants' Specification cites several Japanese patent applications as examples of photon mode reading of an optical disc. Spec. 2, 3.
3. Appellants' Specification describes an experiment to show the benefits of their first embodiment. The data shows that for read laser wavelength of 405 nm and NA of 0.85, the carrier to noise ratio (for marks of a given pit size) increases as the power is increased. The graphs of figures 7 and 8, and accompanying descriptions, show data for laser powers between 0.3 and 0.5 mW. Appellants' Specification provides no data for laser power levels greater than 0.5 mW. Spec. 12, Figs. 7 and 8, and accompanying descriptions on page 12.
4. Takeda teaches a method of making an optical disk. Abstract.
5. Takeda teaches that the optical disk may be read using a laser with a short wavelength of 400 nm and which uses a lens having an numerical aperture of 0.85. Col. 1, ll. 40-47, col. 4, ll. 10-18.
6. Takeda teaches that the pit size is between 80 nm and 250 nm. Abstract. The Examiner finds, and Appellants have not contested, that this pit size corresponds to the claimed pits of the smallest size being smaller than $0.36\lambda/NA$.

7. Takeda teaches that the recording laser has a power level of "several tens of milliwatts" but does not discuss the power of the read laser. Col. 7, ll. 28-31.
8. Takada teaches an optical recording medium. Abstract.
9. Takada, in describing a test performed on the medium, identifies that the data is written to a disk using a 830 wavelength laser outputting 6mW of power. The disk was then read using a 1mW laser. Takada does not identify the wavelength or aperture of the read laser. Col. 7, ll. 10-19.

ANALYSIS

Rejection of claims 1 through 5, 12, and 14.

Appellants' arguments have not persuaded us that the Examiner's rejection is in error, i.e., the motivation to combine the references is improper. Initially, we note that the Appellants' arguments rely upon a strict application of the teaching, suggestion and motivation test. The Supreme Court, however, recently stated that "[t]he obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. at 1741. Rather, if the combination yields predictable results it is likely to be obvious. The Examiner has found that Takeda teaches reading a disk with pits of the claimed size, using a laser of the claimed wavelength and lens of the claimed numerical aperture. Ans. 3. We concur with these findings. Facts 5 and 6. The Examiner identifies that in Takeda it is inherent that the laser has an output power, but that Takeda does not identify the power at which the laser is operating. Ans. 3. We concur with the Examiner, that the power of a

laser is a measure of an inherent property of a laser that is operating, and we similarly find that Takeda is silent as to what power is used to read the disk. We note that Takeda teaches that the disk is written to with a power level in the tens of milliwatts. Fact 7.

Claim 1 recites that "the laser beam has a power Pr of at least 0.4mW," thus, while the scope of the claim may recite a narrow range for frequency and numerical aperture, the claim recites a large range of laser power, from 0.4 to infinity. The Examiner has found that Takada teaches that a laser of at least 0.45 milliwatt can be used to read a disk. Ans. 4. We concur with the Examiner's findings and find that Takada teaches reading a disk using a laser power of 1 milliwatt, although we note that Takada does not teach this power level at the claimed frequency and numerical aperture. Fact 9. Thus, the Examiner has shown that at the time of the invention it was known to read disks using a laser power level of 1.0 milliwatt, which is in the claimed range of power, i.e. greater than 0.4 milliwatt. We find that using this power level would yield the predictable result of reading the information on the disk. Thus, we consider the Examiner to have established a prima facie case of obviousness.

Appellants' contention that the references do not teach that the combination would not result in the interaction between electric fields to enable super resolution (App. Br. 7) has not persuaded us of error in the rejection as the claims do not recite any such interaction.

Further, Appellants' contention that one skilled in the art would not have had a reasonable probability of success is not persuasive of error. We note that Appellants' have presented no persuasive evidence to support this assertion. There is no evidence on record that shows that lasers of a power

less than of 0.4 mW were ever used (i.e. laser power not in the claimed range), rather all of the evidence of record shows using laser power in the claimed range to read information on a disk was known at the time of the invention. Fact 9. Further, we note that there is no evidence of record to show that using a laser power of 1 milliwatt in Takeda's device would not operate. Appellants' disclosure in Figures 7 and 8 show the data for tests at various power levels, but they do not show power levels beyond 0.5 milliwatts and, thus, do not show that beyond 0.5 milliwatt the device becomes inoperable. Fact 3. We note that during the hearing, Appellants' representative suggested that the power level of Takeda would be significantly less than used in Takada, as the transparent layer through which the laser must read the pits of Takeda is thinner than used in Takada. This argument is not supported by evidence to show that the laser power in Takeda is less than 0.4 milliwatts, nor was it was raised in either of the Briefs, and therefore was not presented to the Examiner. As such, the argument was not timely raised and has been waived. *See* 37 C.F.R. § 41.37(c)(1)(vii); *see also* 37 C.F.R. § 41.47(e)(1).

Finally, Appellants' argument that the combination of the references changes the principle of operation of the prior art devices is not persuasive. As discussed above, Takeda teaches reading a disk with the claimed pits using a laser of the claimed wavelength, and a lens of the claimed numerical aperture. Takada teaches that lasers of the claimed power level are known to be used to read information from disks. The combination of these known principles does not change the principle operation of Takeda, as applying Takada's teaching of a 1milliwatt laser is merely using a known power level to read the disk.

For the aforementioned reasons, Appellants' arguments have not persuaded us of error in the Examiner's rejection of claims 1 through 5, 12, and 14 under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Takada.

Rejection of claims 15 and 18.

Appellants' arguments have not persuaded us that the Examiner erred in: a) determining that the Appellants admission of what is taught by the background art, is prior art and, b) combining the teachings with Takeda and Takada. Initially, we note that Appellants' arguments have not identified a limitation in claims 15 and 18 that is not taught by the references. Rather, Appellants' contentions are directed to whether the admissions in Appellants' Specification are prior art, whether there is proper motivation to select a particular mode and modify the cited prior art as the Examiner proposes, and whether the alleged deficiencies in the rejection of the independent claims are resolved by the admissions in the Specification (App. Br. 10-11). Taking the last issue first, as discussed above, Appellants' arguments have not persuaded us of error in the Examiner's rejection of the independent claims. Concerning the motivation to combine the references, as discussed above, the determination of obviousness is not confined to the formalistic motivation test but, may be determined if the combination of known elements yields predictable results. Here we find that the Examiner has combined known elements to achieve their known functions to achieve predictable results.

Further, we are not persuaded by Appellants' argument, relying upon MPEP 706.02(c), that the admissions are not prior art as they do not relate to knowledge in this country. Appellants' argument is focusing on the

admissions being prior art under 35 U.S.C. § 102, however admissions are prior art, regardless of 35 U.S.C. § 102, provided it is not the work of the inventor. *Riverwood Int'l Corp. v. R.A. Jones Co*. 324 F.3d. at 1354. Accordingly, Appellants' arguments have not persuaded us of error in the Examiner's rejection of claims 15 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Takeda in view of Takada and Appellants' admitted prior art.

ORDER

The decision of the Examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

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