UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YUKIO MICHISHITA

Appeal 2008-0380
Application 09/933,705[1]
Technology Center 2600

Decided: August 14, 2008

Before MAHSHID D. SAADAT, JOHN A. JEFFERY, and MARC S. HOFF, *Administrative Patent Judges*.

HOFF, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF CASE

Appellant appeals under 35 U.S.C. § 134 from a Final Rejection of claims 1, 3-11, 23, and 25-39.[2] In the Examiner's Answer, the Examiner has withdrawn the rejection of claims 4, 5, 7-11, 26-31, 33-35, and 37-39. The rejection of claims 1, 3, 6, 23, 25, 32, and 36 is therefore before the Board. We have jurisdiction under 35 U.S.C. § 6(b).

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[1] Application filed August 22, 2001. The real party in interest is NEC Corporation.
[2] Claims 2, 12-22, and 24 have been cancelled.

We reverse.

Appellant's invention relates to an apparatus for "monitoring the states of optical fibers and optical amplifier-repeaters constituting optical transmission paths in a wavelength division multiplexing optical transmission system by utilizing an optical time domain reflectometer (OTDR)" (Spec. 1). Two OTDR probe lights which differ from each other in wavelength may be used to monitor the state of (a) optical fibers and (b) optical amplifier-repeaters (Spec. 3). The composition of the optical fibers in the optical transmission path is such that separate probe lights may be used to monitor optical fibers and optical amplifier-repeaters, because one light's wavelength will exhibit negative wavelength dispersion and the other light's wavelength will exhibit positive wavelength dispersion (Spec. 12).

Claim 1 is exemplary:

1. An optical transmission path monitoring system for monitoring optical transmission paths by wavelength-division multiplexing probe lights with signal lights of a wavelength division multiplexing optical transmission system, said optical transmission path monitoring system comprising:

an optical fiber monitoring probe light for monitoring optical fibers which constitute some parts of said optical transmission paths; and

an optical amplifier-repeater monitoring probe light for monitoring optical amplifier-repeaters which constitute other parts of said optical transmission paths,

wherein a wavelength of said optical fiber monitoring probe light comprises such a wavelength as makes wavelength dispersion in said optical transmission paths negative, and a wavelength of said optical amplifier-repeater monitoring probe light comprises such a wavelength as makes wavelength dispersion in said optical transmission paths positive.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Yoneyama	US 6,301,404 B1	Oct. 9, 2001

Claims 1, 3, 6, 23, 25, 32, and 36 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Yoneyama.

Appellant contends that Yoneyama does not anticipate the claims because Yoneyama does not teach that its probe light wavelengths are such as to make wavelength dispersion in the optical transmission paths negative, or positive, in the particular manner the claims recite, and that the Examiner has not established that the recited wavelength dispersion qualities are inherently present in Yoneyama.

Rather than repeat the arguments of Appellant or the Examiner, we make reference to the Brief (filed October 13, 2006), the Answer (mailed January 10, 2007), and the Reply Brief (filed March 8, 2007) for their respective details.

ISSUE

The principal issue in the appeal before us is whether the Examiner erred in holding that Yoneyama teaches that the wavelength of the optical fiber monitoring probe light is such as to make wavelength dispersion in the optical transmission paths negative, and that the wavelength of the optical amplifier-repeater monitoring probe light is such as to make wavelength dispersion in the optical transmission paths positive, as required by claim 1.

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

The Invention

1. Appellant's invention concerns an apparatus for "monitoring the states of optical fibers and optical amplifier-repeaters constituting optical transmission paths in a wavelength division multiplexing optical transmission system by utilizing an optical time domain reflectometer" (OTDR) (Spec. 1).

2. Two OTDR probe lights which differ from each other in wavelength may be used to monitor the state of (a) optical fibers and (b) optical amplifier-repeaters (Spec. 3).

3. The composition of the optical fibers in the optical transmission path is such that separate probe lights may be used to monitor optical fibers and optical amplifier-repeaters, because one light's wavelength will result in negative wavelength dispersion in the optical transmission paths, and the other light's wavelength will result in positive wavelength dispersion in the optical transmission paths (Spec. 12).

4. Appellant's use of non-zero dispersion shift fibers in 10 of 11 transit sections and 1.3μm zero dispersion fibers in 1 of 11 transit sections is what results in negative wavelength dispersion in the optical transmission paths for wavelengths shorter than 1550 nm, and positive wavelength dispersion in the optical transmission paths for wavelengths longer than 1550 nm (Spec. 12; see Fig. 4).

Yoneyama

5. Yoneyama teaches a supervisory system for monitoring an optical repeating/transmitting system (col. 1, ll. 9-10).

6. Yoneyama teaches the use of two supervisory signal lights, having wavelengths λsv1 and λsv2, which monitor both optical fibers and optical amplifier-repeaters (col. 10, ll. 16-67).

7. Yoneyama's disclosure is silent concerning the wavelength dispersion characteristics in its optical transmission paths.

8. Yoneyama shows wavelength λsv1 to be shorter than main signal light wavelengths λ1- λ4 (Fig. 9). Yoneyama shows wavelength λsv2 to be longer than main signal light wavelengths λ1- λ4 (Fig. 10).

PRINCIPLES OF LAW

Anticipation is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO, Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

"It is well settled that a prior art reference may anticipate when the claim limitations not expressly found in that reference are nonetheless inherent in it. Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claimed limitations, it anticipates." *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002) (citations and internal quotation marks omitted). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient."

In re Robertson, 169 F.3d 743, 745 (Fed. Cir. 1999) (citations and internal quotation marks omitted).

ANALYSIS

Claims 1, 3, 6, 23, 25, 32, and 36

The Examiner argues that because claim 1 recites that the optical fiber monitoring probe light "comprises such a wavelength as makes wavelength dispersion in said optical transmission paths negative," and the optical amplifier-repeater monitoring probe light "comprises such a wavelength as makes wavelength dispersion in said optical transmission paths positive," the claim is met by Yoneyama's teaching of two probe lights, one having a wavelength shorter than the wavelengths of the main signal lights, and one having a wavelength longer than the wavelengths of the main signal lights (FF 6, 8), which corresponds to the relative wavelengths disclosed in Appellant's Specification (Ans. 6, 7). The Examiner, although explicitly disavowing any reliance upon the principle of inherency (Ans. 5), asserts that Appellant is claiming that the monitoring probe light wavelength itself makes wavelength dispersion in the optical transmission paths negative or positive, respectively (*Id.*), and presumes that Yoneyama's relatively shorter-wavelength supervisory light λsv1 will exhibit negative wavelength dispersion in the optical transmission paths of Yoneyama, and that Yoneyama's relatively longer-wavelength light λsv2 will exhibit positive wavelength dispersion in the optical transmission paths of Yoneyama, just as occurs in Appellant's system (Ans. 6). The Examiner further argues that because Appellant does not claim the composition of the optical fibers in the

optical transmission path, disclosed at pages 11 and 12 of the Specification, that their composition is not relevant to the patentability of Appellant's claims (Ans. 8).

We are not persuaded that Yoneyama's light wavelengths result in the dispersion characteristics corresponding to the claim limitations. Appellant argues that Yoneyama is silent regarding the dispersion characteristics exhibited by his supervisory light wavelengths (App. Br. 7), and we can find no such teaching in Yoneyama (FF 7). Despite the Examiner's disclaimer of inherency, his rejection is correct only if the wavelengths used by Yoneyama's supervisory lights result in negative dispersion and positive dispersion, respectively, in its optical transmission paths. Appellant discloses that his probe lights result in the claimed, useful wavelength dispersion *specifically because* he uses a certain combination of optical fibers in his optical transmission path (FF 3). Appellant's use of non-zero dispersion shift fibers in 10 of 11 transit sections and 1.3μm zero dispersion fibers in 1 of 11 transit sections is what results in negative wavelength dispersion in the optical transmission paths for wavelengths shorter than 1550 nm, and positive wavelength dispersion in the optical transmission paths for wavelengths longer than 1550 nm (FF 4). It *is possible*, despite Yoneyama's silence, that the wavelengths used in Yoneyama make wavelength dispersion in the optical transmission paths negative or positive, respectively, as recited in claim 1. Because inherency may not be established by mere possibilities, however, the Examiner may not rely on Yoneyama to teach those elements of the claims. *Robertson*, 169 F.3d at 745.

We therefore find that the Examiner has not established that Yoneyama teaches all of the elements of claim 1, and we find error in the Examiner's rejection of claim 1, as well as claims 3 and 6 dependent therefrom,[3] under 35 U.S.C. § 102(e). Independent claims 23 and 32 contain identical limitations regarding wavelength dispersion. We therefore also find error in the Examiner's rejection of claim 23, claim 25 dependent therefrom, claim 32, and claim 36 dependent therefrom, under 35 U.S.C. § 102(e).

CONCLUSION OF LAW

We conclude that Appellants have shown that the Examiner erred in rejecting claims 1, 3, 6, 23, 25, 32, and 36. On the record before us, claims 1, 3, 6, 23, 25, 32, and 36 have not been shown to be unpatentable.

DECISION

The Examiner's rejection of claims 1, 3, 6, 23, 25, 32, and 36 is reversed.

[3] We note in passing that claim 6 depends from claim 5 which was not rejected under § 102, and in fact, is not rejected at all. *See* Ans. 2 (withdrawing rejection of claim 5). For this reason alone, the anticipation rejection of claim 6 is erroneous and must be reversed. Nevertheless, we reverse the rejection of this claim and all other claims on appeal for the reasons indicated in the opinion.

REVERSED

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