UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte DIANA RODRIGUEZ, STEVE A, FONTAINE, LAURENT POTARD, JENNIFER A. BATTEY, ANDREW D. HOFLICH, AARON I. BLANKENSHIP, JAMES M. CARLSON and KEVIN L. STRAUSE

Appeal No. 2005-1942
Application No. 10/173,938

ON BRIEF

Before THOMAS, LEVY, and BLANKENSHIP, Administrative Patent Judges.
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-31[1], which are all of the claims pending in this application.

We affirm-in-part.

[1] We observe that claim 22 depends from claim 23 and that claim 23 depends from claim 22. We consider this a formal matter that can be addressed by the examiner subsequent to the appeal.

BACKGROUND

The appellants' invention relates to closures and cassettes for a housing bridge and/or transition optical fibers in a dispersion-managed network(specification, page 1).

Claim 1 is representative of the invention, and is reproduced as follows:

1. A fiber optic cable closure for containing optical fibers of a dispersion-managed network, the fiber optic closure comprising:

a housing having a cavity; and

at least one bridge optical fiber disposed within the cavity, the bridge optical fiber having a first end and a second end configured for optically connecting with optical fibers having different dispersion characteristics.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Keys	6,456,773	Sep. 24, 2002 (filed Apr. 17, 2000)
Mukasa	6,470,126	Oct. 22, 2002 (filed Jun. 22, 2000)

Claims 1-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukasa in view of Keys. Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference

to the answer (mailed December 23, 2004) for the examiner's complete reasoning in support of the rejection, and to the brief (filed September 11, 2004) for the appellants' arguments thereagainst.

Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the brief have not been considered. See 37 CFR § 41.37(c)(1)(vii)(eff. Sept. 13, 2004).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejection advanced by the examiner, and the evidence of obviousness relied upon by the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the brief along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

Upon consideration of the record before us, we make the determinations which follow. We begin with claim 1.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the

applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

The examiner's position (answer, pages 3 and 4) is that Mukasa teaches every aspect of the claimed invention except for the housing having a cavity. To overcome this deficiency of Mukasa, the examiner turns to Keys for a teaching of a "dispersion compensating module having a housing with a cavity."

Appellants' position (brief, page 6) is that the purported modification does not teach, disclose or otherwise suggest all of the limitations of claim 1. It is further asserted (id.) that an artisan would not have been motivated to combine or modify the teachings of the '126 patent (Mukasa) with the '773 patent (Keys) because the '126 patent (Mukasa) expressly teaches away from the configuration/architecture of the '773 patent (Keys).

From our review of the references of record, we are in general agreement with appellants, for the reasons which follow, that the teachings of Mukasa and Keys would not have suggested

the invention of claim 1. From the disclosure of Mukasa (col. 3, lines 5-44), quoted in part on page 7 of the brief, we find that Mukasa discloses changing from the conventional idea of having a dispersion compensating optical fiber (DCF) in a module exclusively for dispersion compensation, to an optical fiber which functions both as a DCF and as a part of an optical transmission line. We note that both appellants (brief, page 6) and the examiner (answer, page 7) find that in Mukasa, part of the DCF is removed from a module and used in part as a transmission line. We additionally note that appellants (brief, page 9) and the examiner (answer, page 7) find that Mukasa discloses that use of a bridge fiber (intermediate mode field optical fiber) connected between optical fibers. As noted by appellants (id.), Mukasa discloses (col. 5, lines 15-29) a positive dispersion optical fiber and a DCF.

From our review of Mukasa, we find, as did appellants, a disclosure of a bridging fiber connecting a positive dispersion value optical fiber and a DCF. We further find that Mukasa discloses (col. 3, line 7) that it was conventional to have a DCF made into a moduled optical fiber. In addition, we find that Mukasa discloses (col. 8, line 60 though col. 9, line 9) that where an intermediate mode field optical fiber (bridge fiber, see

brief, page 9) is connected between an optical fiber having a positive dispersion value and a DCF, where the length of the bridge fiber is between 1 and 5 meters, an effect of suppressing a connection loss can be securely brought about, and it becomes easier still to incorporate a bridge fiber in an optical transmission line as a connection portion. In particular, the bridge fiber can be formed in the form of a module, whereby the bridge fiber can be further easily incorporated.

From this disclosure of Mukasa, we find that Mukasa suggests forming a bridge fiber, which connects to a D+ fiber and a DCF, as a module. We find that this disclosure of Mukasa supports the examiner's assertion (answer, pages 6 and 7) that it would have been clear to an artisan to place the optical fiber of Mukasa in a housing having a cavity and a spool for protecting it from outside environment and kinks. Although Mukasa does not discuss environment, the disclosure of forming the bridge fiber, which connects to the D+ and DCf fibers, as a module, suggests the limitations of claim 1.

Turning to Keys, the reference is directed to a dispersion compensation module which comprises a housing accomodating one or more spools of DCF (col. 2, lines 14-16). It is further

disclosed that jumpers, or relatively short pieces of fiber can be used to interconnect the spools through adapters external to the packages (col. 2, lines 19-21). In the first embodiment, shown in figures 3-5 (col. 2, lines 39 and 40) two DCF spools are disclosed to be connected by jumper 414 (bridging fiber) (col. 3, lines 42-44). In the second embodiment of figures 6 and 7,(col. 2, lines 42-44) it is disclosed (figure 7) that there are three spools and plural jumpers (col. 4, lines 4-10). In the third embodiment of figure 8 (col. 2, lines 45-47) a jumper, unlabeled, connects the two spools of the sealed housing.

We therefore find that in each of the three embodiments of Keys, plural spools of DCF are connected by bridging fibers connected to adapters external to the packages which house the DCF spools.

From the disclosure of Keys that bridging fibers are placed externally to the packages housing the DCF, we find no teaching or suggestion to place the bridge fiber, configured for connecting with optical fibers having different dispersion characteristics than the bridge fiber, within the packages housing the DCF. That is, although Keys discloses placing the DCF on spools within packages of a housing 340, none of the three embodiments places the bridging fiber within the packages. The

closest Keys comes to this is that portions of the bridging fibers (figures 4-7) extend partially into the housing 340 as they connect to adapters 410 and 412 and arcuate or disc shaped member 430. However, being partially within the housing does not meet the claim recitation that the bridging optical fiber is within the cavity in the housing, which we consider to require that the bridging fiber, and not just part of the bridging fiber is within the cavity of the housing. Although the recitation that the bridging fiber is configured for connection to optical fibers of different dispersion characteristics, the claim does not recite that the optical fibers have different characteristics from each other. Rather the language is met by optical fibers that have different dispersion characteristics from the bridging fiber. However, because Keys only discloses placing part of the bridge fiber within the housing cavity, Keys alone does not meet the limitations of claim 1, and Keys in combination with Mukasa is cumulative to the teachings of Mukasa.

We are not persuaded by the examiner's assertion (answer, page 7) that applicants fail to establish any special definition of a bridge fiber in the original specification. From our review of the specification, we find, page 9, that:

At a reference wavelength of 1550 nm, optical fiber

> 2a may have a positive dispersion (D+) characteristic and optical fiber 3a may have a negative dispersion (D-) characteristic. While traveling through a D+ optical fiber, an optical pulse signal stretches, thereby increasing its duration compared with the original optical signal. On the other hand, while traveling through a D- optical fiber, the optical pulse is shortened, thereby decreasing its duration compared with the original optical signal. Thus, by optically connecting suitable lengths of D+ and D- optical fibers the net dispersion of a DMN can be manipulated to have a relatively low net dispersion.
>
> However, a direct optical connection between optical fibers having extremely different first and second dispersion characteristics can undesirably result in a relatively high splice loss. For example, directly connecting D+ and D- optical fibers having MFDs of about 11.5μm and 6.0μm, respectively, results in a relatively high splice loss. To overcome this relatively high splice loss, the DMNs of the present invention optically connect D+ and D- optical fibers in a fiber optic cable closure with bridge fiber 42 there between. In one embodiment, the bridge fiber acts as gradual change in MFD between the D+ and D- optical fibers, thereby allowing for a relatively low splice loss. Even though bridge fiber 42 has different optical characteristics than either the D+ and D- optical fibers, the splice loss is advantageously reduced compared with a direct D+ to D-splice.

From this disclosure, and the lack of any support provided by the examiner to support the examiner's position, we find that an artisan would have considered a bridge fiber to be an optical fiber which connects fibers of different dispersion characteristics than the bridge fiber, and not merely "an optical fiber which connects two elements" as asserted by the examiner. In addition, we observe the disclosure of Mukasa (col. 5, lines

19-29) that the length of a bridge fiber (intermediate mode field optical fiber) is 1/1000 or less the length of an optical fiber having a positive dispersion value.

Nor do we find that the DCF is a bridge fiber because in Keys, the bridge fiber connects the DCF fibers. Nor are we persuaded by the examiner's assertion (answer, page 8) that Key's disclosure of having the bridging fiber outside the housing is simply an option of the device, and an alternative way of using Key's device. As we stated, supra, none of the three embodiments of Keys discloses or suggests locating the bridging fiber inside the housing or module, and the examiner has failed to point to any disclosure of Keys to support the examiner's position.

We are cognizant of the examiner's position (answer, pages 3 and 4) that Mukasa discloses the claimed invention with the exception of the cavity (and the bridging fiber being within the cavity), and that it would have been obvious to therefore use the spools and housing of Keys with the fibers of Mukasa, if protection was desired. However, Mukasa alone suggests the language of claim 1.

From all of the above, we find that the teachings of Mukasa establishes a prima facie case of obviousness of claim 1, that has not been rebutted by appellants in view of Mukasa's

disclosure of forming the bridging fiber as a module. The rejection of claim 1 under 35 U.S.C. § 103(a) is therefore affirmed. As claims 3, 7 and 10 fall with claim 1 (brief, page 4), the rejection of claims 3, 7 and 10 is affirmed.

We turn next to claims 2, 4, 5, and 6. As these claims have been argued as a group, we select claim 2 as representative of the group. Appellants assert (brief, page 11 and 12) that the claims recite the additional limitation of an optical connection between a transitional optical fiber and the bridge fiber with an other end of the transition fiber being configured for optical connection in the field. We affirm the rejection of claim 2 in view of the disclosure of Mukasa (col. 8, line 60 through col. 9, line 10) of connecting the bridge fiber to D+ and DCF fibers, and the disclosure of connecting to an optical fiber for signals of a long haul (col. 21, lines 8-10). Accordingly, the rejection of claim 2, and claims 4, 5, and 6, which fall with claim 2 (brief, page 4) is affirmed.

We turn next to claims 8, 9, 11 and 12. As claims 8 and 9 have been separately argued from claims 11 and 12 (brief, pages 13 and 14) we select claims 8 and 11 as representative claims. for the following reasons, we will affirm the rejection of claims 8 and 9 and reverse the rejection of claims 11 and 12. We note

at the outset that Mukasa is not specific as to the structure of the module. However, upon providing Mukasa with a housing including packages as taught by Keys, we find that claim 8 is met because Keys shows packages 325 and 350 in housing 340. A portion of bridge fiber 414, although not within the package, is within the recess in the package where it connects to adapter 412 of first package or tray 350. The DCF is in communication with the bridge fiber through the adapter. The DCF is configured for connection to a fiber in the field. The L-shaped portion 125 is a transition section that protects and routes the fiber to the second tray. Appellants' assertion (brief, page 13) that a prima facie case is lacking does not persuade us of any error on the part of the examiner. Accordingly, the rejection of claim 8, and claim 9, which falls with claim 8, is affirmed.

Turning to claims 11 and 12, we reverse the rejection of these claims because Mukasa is not specific as to plural trays and because in Keys, only the DCF is within the storage areas. Keys discloses part of the bridge fiber as being within a cavity of the tray, but not within the first storage area. Accordingly, we find that the combined teachings of Mukasa and Keys fails to suggest the language of claim 11. Accordingly, the rejection of claims 11 and 12 is reversed.

We turn next to claims 13 and 24. As these claims have been argued together, we select claim 13 as representative of the group. We will affirm the rejection of claim 13 for the same reasons as we affirmed the rejection of claim 1. We add that claim 13 requires a first storage area but does not disclose a second storage area. Because the module of Mukasa will inherently have a first storage area as it holds the bridge fiber, the rejection of claim 13, and claim 24, which falls with claim 13 (brief, page 4) is affirmed.

We turn next to claims 14-17, 19 and 20. Because appellants separately discuss the limitations of claims 19 and 20 from claims 14-17 (brief, pages 16 and 17), we select claims 14 and 19 as representative of the group. We turn first to claim 14. We affirm the rejection of claim 14 for the same reasons as we affirmed the rejection of claim 2. Accordingly, the rejection of claims 14-17 is affirmed. Turning to claim 19, the claim requires that the mode field diameter of the D+ fiber is greater than the mode field diameter of the bridge fiber. Appellants assert that the final rejection fails to point out this feature. From our review of Mukasa, we find (col. 5, lines 34-38) that the mode field diameter of the bridge fiber is between the mode field diameter of the D+ fiber and the mode field diameter of the DCF.

Accordingly, we find that Mukasa suggests the language of claim 19. Accordingly, the rejection of claims 19 and 20 is affirmed.

We turn next to claims 21-23. As these claims have been argued together, we select claim 21 as representative of the group. Appellants arguments are set forth on pages 17 and 18 of the brief. We affirm the rejection of claim 21 for the same reasons that we affirmed the rejection of claim 8. Accordingly, the rejection of claim 21, and claims 22 and 23, which fall with claim 21, is affirmed.

We turn next to claims 18 and 25-30. As claims 18 and 25-30 have been separately argued, we select claims 18 and 25 as representative of the group. We turn first to claim 18. We cannot sustain the rejection of claim 18 because the teachings of Mukasa and Keys do not suggest the other end of the first optical fiber being disposed within the second storage area. Accordingly, the rejection of claim 18 is reversed. We turn next to claim 25. We cannot sustain the rejection of claim 25 because the teachings of Mukasa and Keys does not suggest at least a portion of the first and second optical fibers being disposed in the second storage area. Accordingly, the rejection of claim 25, and claims 26-30, dependent therefrom, is reversed.

We turn next to the rejection of claim 31. Appellants' arguments are found on pages 19 and 20 of the brief. We affirm the rejection of claim 31 for the same reasons as we affirmed claims 1 and 2.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-10, 13-17, 19-24 and 31 under 35 U.S.C. § 103 is affirmed. The rejection of claims 11, 12, 18 and 25-30 under 35 U.S.C. § 103(a) is reversed.

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

AFFIRMED-IN-PART

JAMES D. THOMAS Administrative Patent Judge	)
STUART S. LEVY Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)

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