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To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

1. Name of conveying party(ies):

Ryan Bise
Jayesh Jasapara

2. Name and address of receiving party(ies)

Name: Fitel USA Corp.

Internal Address: _____

Additional name(s) of conveying party(ies) attached? ☐ Yes ☒ No

3. Nature of conveyance:



Assignment



Merger



Security Agreement



Change of Name



Other _____

Street Address: 2000 Northeast
ExpresswayCity: Norcross State: PA Zip: 30071Execution Date: 5/20/03, 5/20/03Additional name(s) & address(es) attached? ☐ Yes ☒ No

4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: 5/20/03A. Patent Application No.(s) 10/388,110

B. Patent No.(s) _____

Additional numbers attached? ☐ Yes ☒ No

5. Name and address of party to whom correspondence concerning document should be mailed:

Name: Wendy W. Koba

Internal Address: _____

6. Total number of applications and patents involved: 17. Total fee (37 CFR 3.41).....\$ 40.00☐ Enclosed☒ Authorized to be charged to deposit account

8. Deposit account number:

50-2074Street Address: PO Box 556City: Springtown State: PA Zip: 18081

DO NOT USE THIS SPACE

9. Signature.

Wendy W. Koba

Name of Person Signing

Wendy W. Koba

Signature

6/30/03

Date

Total number of pages including cover sheet, attachments, and documents: 4

Mail documents to be recorded with required cover sheet information to:

Commissioner of Patents & Trademarks, Box Assignments
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07/11/2003 ECDOPER 00000035 502074 10388110

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PATENT
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ASSIGNMENT AND AGREEMENT

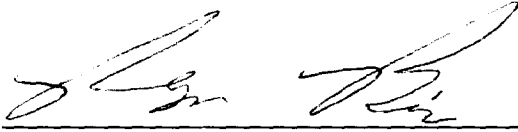
For value received, we, **Ryan Bise**, of **Chatham** in the County of **Morris**, and the State of **New Jersey** and **Jayesh Jasapara**, of **North Plainfield** in the County of **Somerset**, and the State of **New Jersey**, hereby sell, assign and transfer to Fitel USA Corp., a corporation of the State of Delaware, having an office at 2000 Northeast Expressway, Norcross, Georgia, 30071, U.S.A. and its successors, assigns and legal representatives, the entire right, title and interest, for the United States of America, in and to certain inventions related to **Temperature Tuning Of Dispersion In Photonic Band Gap Fiber** described in an application for Letters Patent of the United States, **Serial No. 10/388,110**, filed on March 13, 2003, and all the rights and privileges in said application and under any and all Letters Patent that may be granted in the United States for said inventions; and we also concurrently hereby sell, assign and transfer to Fitel USA Corp. the entire right, title and interest in and to said inventions for all countries foreign to the United States, including all rights of priority arising from the application aforesaid, and all the rights and privileges under any and all forms of protection, including Letters Patent, that may be granted in said countries foreign to the United States for said inventions.

We authorize Fitel USA Corp. to make application for such protection in its own name and maintain such protection in any and all countries foreign to the United States, and to invoke and claim for any application for patent or other form of protection for said inventions, without further authorization from us, any and all benefits, including the right of priority provided by any and all treaties, conventions, or agreements.

We hereby consent that a copy of this assignment shall be deemed a full legal and formal equivalent of any document which may be required in any country in proof of the right of Fitel USA Corp. to apply for patent or other form of protection for said inventions and to claim the aforesaid benefit of the right of priority.

We request that any and all patents for said inventions be issued to Fitel USA Corp. in the United States and in all countries foreign to the United States, or to such nominees as Fitel USA Corp. may designate.

We agree that, when requested, we shall, without charge to Fitel USA Corp. but at its expense, sign all papers, and do all acts which may be necessary, desirable or convenient in connection with said applications, patents, or other forms of protection.



Ryan Bise

Date: 5/20/03

United States of America)


State of New Jersey) ss.:

County of Union)

On this 20 day of May, 2003, before me personally came, **Ryan Bise** to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.



Notary Public **AVA R. CRUZ**
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 12/27/2006


Jayesh Jasapara

Date: 5/20/03

United States of America)

State of New Jersey, ss.:

County of Union)

On this 20 day of MAY, 2003, before me personally came, **Jayesh Jasapara** to me known to be the individual described in and who executed the foregoing instrument, and acknowledged execution of the same.


Notary Public

AVA R. CRUZ
NOTARY PUBLIC OF NEW JERSEY
Commission Expires 12/27/2006



IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Declaration and Power of Attorney

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am an original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled **Temperature Tuning Of Dispersion In Photonic Band Gap Fiber** the specification of which was filed on March 13, 2003, as application **Serial No. 10/388,110**.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by an amendment, if any, specifically referred to in this oath or declaration.

I acknowledge the duty to disclose all information known to me which is material to patentability as defined in Title 37, Code of Federal Regulations, 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

None

I hereby claim the benefit under Title 35, United States Code, 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

None

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements

and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

I hereby appoint the following attorney(s) with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected therewith:

John M. Harman
Michael A. Morra

(Reg. No. 38173)
(Reg. No. 28975)

I hereby appoint the attorney(s) on ATTACHMENT A as associate attorney(s) in the aforementioned application, with full power solely to prosecute said application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent and Trademark Office connected with the prosecution of said application. No other powers are granted to such associate attorney(s) and such associated attorney(s) are specifically denied any power of substitution or revocation.

Full name of 1st joint inventor: **Ryan Bise**

Inventor's signature  Date 5/29/03

Residence: **Chatham, Morris County, New Jersey, United States of America**

Citizenship: **United States of America**

Post Office Address: **420 River Road
Apartment A-10
Chatham, New Jersey 07928**

Full name of 2nd inventor: **Jayesh Jasapara**

Inventor's signature



Date

5/20/03.

Residence: **North Plainfield, Somerset County, New Jersey, United States of America**

Citizenship: **India**

Post Office

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Address:

Apartment F-17

North Plainfield, New Jersey 07060

ATTACHMENT A

Attorney Name(s): **Wendy W. Koba**

Reg. No.: **30509**

Telephone calls should be made to:

Phone No.: **610-346-7112**

Fax. No.: **610-346-8189**

All written communications are to be addressed to:

**Wendy W. Koba
PO Box 556
Springtown, PA 18081**



Bise 1-2

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

Patent Application

Inventor(s) Ryan Bise
Jayesh Jasapara

Case 1-2

Conf. No. 5825

Serial No. 10/388,110

Group Art Unit Not yet assigned

Filing Date March 13, 2003

Examiner Not yet assigned

Title Temperature Tuning of Dispersion in Photonic Bandgap Fiber

COMMISSIONER OF PATENTS
WASHINGTON, D.C. 20231

SIR:

Preliminary Amendment

In response to the Notice to File Missing Parts dated May 6, 2003 (application Paper No. not shown), please amend the above-identified application as follows:

IN THE SPECIFICATION:

Please amend the paragraph at lines 1-16 of page 2 as follows:

---FIG. 1 is a cross-sectional view of a liquid-filled photonic band gap (PBG) fiber capable of temperature tuning in accordance with the present invention;

FIG. 2 is a side view of the fiber of FIG. 1, illustrating in particular the coupling of a section of filled PBG fiber between an input communication fiber and an output communication fiber;

FIG. 3 illustrates a simplified and enlarged cross-section of PBG fiber, illustrating in particular the transmission of both the transverse and axial signal components;

FIG. 4 is a graph illustrating the contributions to dispersion associated with both reflectance (R) and wavelength (L), also illustrating the total (T) dispersion value;

FIG. 3 5 is a graph of the transmission spectra for the fiber of FIG. 1, measured at both 25°C and 125°C; and

FIG. 4_6 is a graph depicting the dependence of the photonic band gap spacing and width on the index of refraction (which is illustrated as changing as a function of temperature).

~~FIGs. 5(a) and (b) are graphs of transmission spectra and group delay, respectively, for a filled PBG fiber with an optical signal launched at a wavelength centered near 630 nm, the transmission spectra and group delay measured at temperatures of 22°C and 50°C, respectively; and~~

~~FIG. 6 is a plot of the minimum group delay value and long wavelength edge of the filled PBG fiber, as a function of temperature.---~~

Remarks

In the Notice of Missing Parts dated May 6, 2003, the Formalities Letter stated that "Figure(s) **5ab** described in the specification [appear to be missing]". Upon further review, it was discovered that the "Brief Description of the Drawings" section of the specification as filed had not been properly modified to reflect the detailed description of the invention as contained in the filed specification. Indeed, there is no longer a "FIGs. 5(a) and (b)" in the set of Formal Drawings, or described in the specification.

Applicants have therefore amended the "Brief Description of the Drawings" of the present specification, as noted above, to properly reflect the Formal Drawings and the description of the invention as contained in pages 3-7 of the present specification.

Applicants submit that with this amendment to the specification, the "omission" as described in the Notice of Missing Parts has been properly addressed. Applicants are also filing with this response a Declaration, Assignment, and the proper late fee.

Should the Examiner have any questions regarding this application, the Examiner is invited to contact applicants' attorney at the telephone number listed below.

Respectfully submitted,

Ryan Bise
Jayesh Jasapara

By: Wendy W. Koba
Wendy W. Koba
Reg. No. 30509
610-346-7112
Attorney for applicants

Date: 6/30/03