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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/114,767	04/26/2005	Leonid B. Glebov	UCF-470CIP	2613

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EXAMINER	
RODRIGUEZ, ARMANDO	
ART UNIT	PAPER NUMBER
2828	

MAIL DATE	DELIVERY MODE
11/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/114,767	GLEBOV ET AL.	
	Examiner	Art Unit	
	ARMANDO RODRIGUEZ	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-35 is/are pending in the application.

4a) Of the above claim(s) 21-35 is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-20 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

After reviewing applicant's arguments and reconsidering the restriction in light of the prior art search, claims 9-20 pertaining to a resonator, previously withdrawn from consideration as a result of a restriction requirement, are hereby rejoined and fully examined for patentability.

Claims 21-35 pertaining to a multi-channel coupled laser, remain withdrawn from consideration as a result of a restriction election, filed on October 9. 2007.

Claim Objections

Claim 6 is objected to because of the following informalities: the claim should identify the recited "mirror" as a mirror. Appropriate correction is required.

Claim 21 objected to because of the following informalities: "gating" should read as grating. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8, 9-16, 17-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "high" in claim 1 is a relative term which renders the claim indefinite. The term "high" is not defined by the claim, the specification does not provide a

standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is not clear within the claim what applicant considers "high".

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: Applicant recites "a resonator for a laser", however applicant has failed to define the resonator. It is not clear within the claim language how a diffractive element, a collimating optic and a gain define a resonator.

Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: Applicant recites "an external resonator", however applicant has failed to define the external resonator. It is not clear within the claim language how a diffractive element, a lasing emitter and a window define an external resonator.

Regarding claims 17,

It is not clear within the claim language, what element provides the modes for transmission and reflection and it is not clear how the resonator is formed, thereby the claim is incomplete and indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 5, 6, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over George et al (US 4,752,130) in view of Efimov et al (High efficiency Bragg gratings in photothermorefractive glass).

Regarding claims 1, 8,

George et al illustrates in figure 5 a Bragg-resonant tunable laser cavity including a dicromated gelatin volume transmission grating (16), a collimating optics (12, 20) and a gain medium (40), as illustrated in figure 5 the arrangement will provide angular and spectral selection.

George et al is silent as to the volume transmission grating being of a photo-thermo-refractive element.

Emifov et al discloses in the introduction first column the use of dichromated gelatin as holographic optical elements and discloses throughout the publication the use of photothermorefractive glass with gratings instead of dichromated gelatin.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to combine the photorethermofractive glass with gratings of Emifov with the Bragg resonant tunable laser of George et al because the photorethermofractive glass with gratings of Emifov will provide absolute high efficiency of 93%, which may imply approximately 95%.

Regarding claims 5, 6,

George et al illustrates in figure 5 dispersive elements (14, 18), which serve to retro-reflect radiation.

Allowable Subject Matter

Claims 9 and 17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

Claims 10-16 depend from claim 9.

Claims 18-20 depend from claim 17.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARMANDO RODRIGUEZ whose telephone number is 571-272-1952. The examiner can normally be reached on 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ARMANDO RODRIGUEZ/
Primary Examiner
Art Unit 2828

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