Title: HIGH-POWER FREQUENCY CONVERSION APPARATUS USING A MULTI-PASS CONJUGATE-IMAGE SUBCAVITY DESIGN

Abstract: A frequency conversion apparatus employing a multi-pass conjugate image sub-cavity design is disclosed. The frequency conversion apparatus (100) comprises a fundamental wave resonator (10) for generating a wave, the fundamental wave resonator including first and second end mirrors (12, 14), a laser medium (16), and an energy source (15); a first sub-cavity (11) located at least partially within the fundamental wave resonator, a first frequency conversion medium (26) for converting a portion of a fundamental wave into the first converted wave; and a second frequency conversion medium (28) for generating at least a second converted wave having a frequency that is different from the first converted wave, the second frequency conversion medium located within the first sub-cavity.
(88) Date of publication of the international search report: 13 December 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7): G02F 1/37
US CL: 359/326, 329
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by classification symbols)
U.S.: 359/326-332

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
USPTO "EAST" and "WEST" Data Bases searched; search terms: frequency adj converter, wavelength adj converter, fundamental, harmonic, conjugate, subcavity, sub adj cavity

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 5,943,351 A (ZHOU ET AL) 24 August 1999 (24.08.99), see entire document, especially abstract, Figure 7, and column 7, lines 1-16.</td>
<td>1-30</td>
</tr>
<tr>
<td>A</td>
<td>US 5,025,446 A (KUIZENGA) 18 June 1991 (18.06.91), see entire document.</td>
<td>1-30</td>
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<td>A</td>
<td>US 5,289,491 A (DIXON) 22 February 1994 (22.02.94), see entire document.</td>
<td>1-30</td>
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<tr>
<td>A</td>
<td>US 5,754,333 A (FULBERT ET AL) 19 May 1998 (19.05.98), see entire document.</td>
<td>1-30</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search 22 MAY 2001
Date of mailing of the international search report 12 JUN 2001

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