IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Yasuhiro Omura

U.S. Patent No.: 7,348,575 Attorney Docket: 24984-0056IP1

Issue Date: March 25, 2008 Appl. Serial No.: 11/266,288 Filing Date: Nov. 4, 2005

Title: PROJECTION OPTICAL SYSTEM, EXPOSURE

APPARATUS, AND EXPOSURE METHOD

Mail Stop Patent Board

Patent Trial and Appeal Board U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450

<u>PETITION FOR INTER PARTES REVIEW OF CLAIMS 1-3, 8-12, 16-20, 23-26, AND 29-33 OF UNITED STATES PATENT NO. 7,348,575 PURSUANT TO 35 U.S.C. §§ 311–319, 37 C.F.R. § 42</u>



TABLE OF CONTENTS

I.	MANDATORY NOTICES UNDER 37 C.F.R § 42.8	1
II.	EVIDENCE	2
III.	REQUIREMENTS FOR IPR UNDER 37 C.F.R. §§ 42.104	2
A.		
B.	Identification of Challenge Under 37 C.F.R. § 42.104(b)	
IV.	SUMMARY OF THE OMURA PATENT	6
A.		6
В.	The Alleged Invention of the Omura Patent	. 11
C.	Claim Construction under 37 C.F.R. §§ 42.104(b)(3)	. 13
D.	Summary of the Prosecution History of the Omura Patent and Certain	in
	Related Applications	. 16
V.	THE PRIOR ART	19
Α.		
	disclosed in Takahashi, except the immersion limitation in claim 1	. 19
В.		
C .	·	
	disclosed in Terasawa, except the immersion limitation of claim 1	. 31
D.	• • • • • • • • • • • • • • • • • • •	
E.	The Immersion References	
1		
	Takahashi and Terasawa	
2	Switkes explains why immersion can increase numerical aperture	
	and that immersion also increases depth of focus	
3	-	
	technology to increase NA	. 47
4	Fukami teaches the immersion limitation to increase DOF for a	
	catadioptric projection optical system having at least two mirrors	
	and a single optical axis	. 49
VI.	CLAIMS 1-3, 10, 16-20, 24, 25, 29, 31-33 ARE UNPATENTABLE AS	
, 1.	OBVIOUS OVER TAKAHASHI IN VIEW OF THE IMMERSION	
	REFERENCES	. 50
1711		
V 11.	CLAIMS 1-3, 8-12, 16-20, 23-26, 29, 31-33 ARE UNPATENTABLE AS OBVIOUS OVER TERASAWA IN VIEW OF THE IMMERSION	•
	REFERENCES	55



VIII.	CLAIM 26 IS UNPATENTABLE AS OBVIOUS OVER TAKAHASHI IN VIEW OF THE IMMERSION REFERENCES, FURTHER IN VIEW OF
	TERASAWA AND SUENAGA
IX.	CLAIM 30 IS UNPATENTABLE AS OBVIOUS OVER TAKAHASHI IN VIEW OF THE IMMERSION REFERENCES, FURTHER IN VIEW OF ASAI
Х.	CLAIM 30 IS UNPATENTABLE AS OBVIOUS OVER TERASAWA IN VIEW OF THE IMMERSION REFERENCES, FURTHER IN VIEW OF ASAI
XI.	CONCLUSION 60



Petition for IPR of US 7,348,575 Page 1

Carl Zeiss SMT GmbH ("Petitioner" or "Zeiss") petitions for *Inter Partes*Review ("IPR") under 35 U.S.C. §§ 311–319 and 37 C.F.R. § 42 of claims 1-3, 812, 16-20, 23-26, and 29-33 of U.S. Patent No. 7,348,575 ("the Omura Patent"),
and asserts that there is a reasonable likelihood that it will prevail with respect to at least one of the claims challenged in this petition (hereinafter the "Petition").

I. MANDATORY NOTICES UNDER 37 C.F.R § 42.8

Carl Zeiss SMT GmbH is the real party-in-interest. 37 C.F.R. § 42.8(b)(1).

The following applications claim benefit under Section 120 to the application that issued as the Omura Patent ("the Omura Application"): 11/513,160 (pending); 11/583,934 (issued as U.S. Patent No. 7,309,870); 11/583,916 (issued as U.S. Patent No. 7,312,463); 11/882,208 (abandoned); 12/379,415 (pending); 12/884,332 (abandoned); and 13/275,760 (pending). Among these, U.S. Patent No. 7,309,870 ("the Omura '870 Patent"), which issued from a continuation of the Omura Application, has been the subject of four interferences between Zeiss and the assignee of the Omura Patent, Nikon Corporation ("Nikon"), specifically Interference Nos. 105,678, 105,749, 105,753, and 105,834. (ZEISS 1001, cover page; ZEISS 1002, cover page; ZEISS 1003-ZEISS 1006.) Final judgment was entered against Nikon in each interference and the involved claims of the Omura '870 Patent were canceled. (ZEISS 1003, p. 2; ZEISS 1004, p. 2; ZEISS 1005, p. 2;



5

10

15

20

ZEISS 1006, p. 2.) In addition to the present Petition regarding the Omura Patent,

Petition for IPR of US 7,348,575 Page 2

Zeiss is filing a second IPR petition on the same date as the present Petition to address claims 55-67 of the Omura Patent. Zeiss is not aware of any other proceeding involving the Omura Patent. 37 C.F.R. § 42.8(b)(2).

Petitioner provides the following designation of counsel. 37 C.F.R. § 42.8(b)(3).

LEAD COUNSEL	BACK-UP COUNSEL
Marc M. Wefers (Reg. No. 56,842)	Chris C. Bowley (Reg. No. 55,016)
(wefers@fr.com)	(bowley@fr.com)
Fish & Richardson P.C.	Fish & Richardson P.C.
3200 RBC Plaza	3200 RBC Plaza
60 South Sixth Street	60 South Sixth Street
Minneapolis, MN 55402	Minneapolis, MN 55402
T: 617-542-5070; F: 617-542-8906	T: 212-765-5070; F: 212-258-2291

Please address all correspondence to the lead counsel at the address provided above. Petitioner also consents to electronic service by email at: lPR24984-0056IP1@fr.com . 37 C.F.R. § 42.8(b)(4).

We authorize the United States Patent and Trademark Office (the "Office") to charge Deposit Account No. 06-1050 for the fee set in 37 C.F.R. § 42.15(a) for this Petition for IPR, and further authorize payment for any additional fees to be charged to this Deposit Account.

II. EVIDENCE

15 Appendix 1 lists the exhibits relied on in this Petition.

III. REQUIREMENTS FOR IPR UNDER 37 C.F.R. §§ 42.104



5

DOCKET

Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.

