

Docket No. 1316.1021CC

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Jang-Hoon YOO et al.

Serial No. 09/930,964

Group Art Unit: 2655

Confirmation No. 2291

Filed: August 17, 2001

Examiner: Mohammad N. Edun

For: OPTICAL PICKUP COMPATIBLE WITH A DIGITAL VERSATILE DISK AND A
RECORDABLE COMPACT DISK USING A HOLOGRAPHIC RING LENS

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AMENDMENT

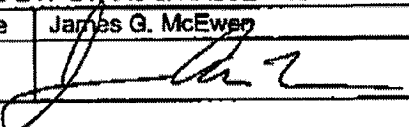
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This is responsive to the Office Action mailed June 4, 2004, having a shortened period for response set to expire on September 6, 2004, September 4 being a Saturday.

The following amendments and remarks are respectfully submitted.

S&H Form: (10/03)

REPLY/AMENDMENT FEE TRANSMITTAL		Attorney Docket No.	1316.1021CC		
		Application Number	09/930,964		
		Filing Date	August 17, 2001		
		First Named Inventor	Jang-Hoon YOO et al.		
		Group Art Unit	2655		
AMOUNT ENCLOSED	0.00	Examiner Name	Mohammad N. Edun		
FEE CALCULATION (fees effective 10/01/03)					
CLAIMS AS AMENDED	Claims Remaining After Amendment	Highest Number Previously Paid For	Number Extra	Rate	Calculations
TOTAL CLAIMS	37	37 =	0	X \$ 18.00 =	\$ 0.00
INDEPENDENT CLAIMS	7	7 =	0	X \$ 86.00 =	0.00
Since an Official Action set an <u>original</u> due date of <u>September 6, 2004</u> , petition is hereby made for an extension to cover the date this reply is filed for which the requisite fee is enclosed (1 month (\$110); 2 months (\$420); 3 months (\$960); 4 months (\$1,480); 5 months (\$2,010));					
If Notice of Appeal is enclosed, add (\$330.00)					
If Statutory Disclaimer under Rule 20(d) is enclosed, add fee (\$110.00)					
Information Disclosure Statement (Rule 1.17(p)) (\$180.00)					
Total of above Calculations =					\$ 0.00
Reduction by 50% for filing by small entity (37 CFR 1.9, 1.27 & 1.28)					
TOTAL FEES DUE =					\$ 0.00
(1) If entry (1) is less than entry (2), entry (3) is "0". (2) If entry (2) is less than 20, change entry (2) to "20". (4) If entry (4) is less than entry (5), entry (6) is "0". (5) If entry (5) is less than 3, change entry (5) to "3".					
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<input type="checkbox"/> Check enclosed as payment.					
<input checked="" type="checkbox"/> Charge "TOTAL FEES DUE" to the Deposit Account No. below.					
<input type="checkbox"/> No payment is enclosed and no charges to the Deposit Account are authorized at this time (unless specifically required to obtain a filing date).					
GENERAL AUTHORIZATION					
<input checked="" type="checkbox"/> If the above-noted "AMOUNT ENCLOSED" is not correct, the Commissioner is hereby authorized to credit any overpayment or charge any additional fees necessary to:					
Deposit Account No.		19-3935			
Deposit Account Name		STAAS & HALSEY LLP			
<input checked="" type="checkbox"/> The Commissioner is also authorized to credit any overpayments or charge any additional fees required under 37 CFR 1.16 (filing fees) or 37 CFR 1.17 (processing fees) during the prosecution of this application, including any related application(s) claiming benefit hereof pursuant to 35 USC § 120 (e.g., continuations/divisionals/CIPs under 37 CFR 1.63(b) and/or continuations/divisionals/CPAs under 37 CFR 1.63(d)) to maintain pendency hereof or of any such related application.					
SUBMITTED BY: STAAS & HALSEY LLP					
Typed Name	James G. McEwen		Reg. No.	41,983	
Signature			Date	SEPT. 1, 2004	

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September 1, 2004

TO (FIRM): United States Patent And Trademark Office, Group Art Unit: 2655
ATTN: Examiner: Mohammad N. Edun

FAX NO.: 703-872-9306

TELEPHONE:

FROM: James G. McEwen 

Re: U.S. Patent Application
Serial No.: 09/930,964
For: OPTICAL PICKUP COMPATIBLE WITH A DIGITAL VERSATILE DISK AND A
RECORDABLE COMPACT DISK USING A HOLOGRAPHIC RING LENS
Inventor(s): Jang-Hoon YOO et al.
Our Docket: 1316.1021CC

NO. OF PAGES (Including this Cover Sheet) 14

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COMMENTS:

Amendment, Reply/Amendment Fee Transmittal

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Trademarks.

on SEP 1, 2004

STAAS & HALSEY LLP

By: 

Date: SEP 1, 2004

SERIAL NO. 09/930,964**DOCKET NO. 1316.1021CC****IN THE SPECIFICATION:**

Please **AMEND** paragraph 0001 as follows:

[0001] This application claims the benefit of Korean Application No. 97-11297, filed March 28, 1997, and is a continuation of U.S. Patent Application No. 09/419,792, filed in the U.S. Patent and Trademark Office on October 18, 1999 and which issued as U.S. Patent No. 6,304,540, now pending, which is a continuation of U.S. Patent Application No. 09/049,988, which issued as U.S. Patent No. 6,043,912, the disclosures of which are incorporated herein by reference.

Please **AMEND** paragraph 0022 as follows:

[0022] FIG. 5A is a view showing the structure of the holographic ring lens 35. The holographic ring lens 35 has an inner region 351 including an optical center of the holographic ring lens 35, a holographic ring 353 centering at the optical center of the holographic ring lens 35 and surrounding the inner region 351, and an outer region 355 surrounding the holographic ring 353.

In connection with FIG. 4A, the inner region 351 coincides with the region A, the holographic ring 353 coincides with the region F, and the outer region 355 coincides with the region B except the region F. A region D shown in FIG. 5B below where the hologram in the holographic ring lens 35 shown in FIG. 5A is provided on the holographic ring 353, corresponds to the numerical aperture of 0.3-0.5 which is intended to be appropriate to the CD-R. In FIG. 5A, a symbol E indicates the diameter of the objective lens for a DVD whose numerical aperture (NA) is 0.6. Also, the holographic ring lens 35 used in the present invention can selectively adjust the numerical aperture (NA) of the objective lens according to the wavelengths of the light beam, and requires no separate variable aperture. The holographic ring lens 35 has the same function as a general spherical lens which transmits a light beam in the convergent or divergent form. Further, the holographic ring lens 35 has a positive optical power and uses a phase shift hologram as a hologram formed in the holographic ring 353. An optimized depth of the grooves the hologram should be determined so that the holographic ring 353 selectively diffracts the incident light beam according to the wavelength thereof. The holographic ring lens 35 is constructed so that the light beam of the 650nm wavelength has transmissive efficiency close to 100% 400% and the light beam of the 780nm wavelength has a zero-order transmissive efficiency of 0% with respect to non-diffracted light beam. For that, in case that the holographic ring 52 has grooves of a constant depth the phase variation by the groove depth of the holographic ring should be about 360° with respect to the 650nm wavelength light. Since the phase variation is generated by 360°, the holographic ring lens 35 transmits most of the 650 nm

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wavelength light. The phase variation by the holographic ring 353 should be optimized with respect to the 780nm wavelength light, by which the 780nm wavelength light is all diffracted as first-order light. As a result, the holographic ring 353 is designed to hardly diffract the 650 wavelength light, but to diffract the 780 nm wavelength light as a first-order diffracted light. An optimized surface groove depth d of the holographic ring 353 for selectively diffracting 650 nm and 780 nm wavelength light beams is determined by the following equations (1) and (2).

Please **AMEND** paragraph 0025 as follows:

[0025] FIG. 6 is a graphical view showing zero-order transmissive efficiency of the holographic ring according to the wavelengths of incident lights. When the surface groove depth d is $3.8\mu\text{m}$, the 650 nm ~~650nm~~-wavelength light is transmitted via the holographic ring 353 by 100% as shown in a solid line overlapped with the symbol "++", and the 780 nm ~~780nm~~-wavelength light is transmitted via the holographic ring 353 by 0% as shown by a solid line overlapped with a circle. At this time, the holographic ring 353 diffracts the 780 nm wavelength light as the first-order light, in which diffraction efficiency thereof is 40%.

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