Docket No.: 60436 9705510 12-29-2003 FORM PTO-1595 (Modified) U.S. DEPARTMENT OF COMMERCE 1EET (Rev. 03-01) Patent and Trademark Office OMB No. 0651-0027 (exp.5/31/2002) P08A/REV03 Tab settings - -To the Director of the United States Patent and Trademark Office: Please record the attached original documents or copy thereof. 2. Name and address of receiving party(ies): 1. Name of conveying party(ies): Keita HARA 1217-63 Masaki HAMAMOTO Name: Sharp Kabushiki Kaisha Yoshiji OHTA Address: 22-22 Nagaike-cho, Abeno-ku, Osaka-shi ☐ Yes ☒ No Additional names(s) of conveying party(ies) 3. Nature of conveyance: ☑ Assignment ☐ Merger ☐ Security Agreement Change of Name City: Osaka State/Prov.: ☐ Other _ Country: JAPAN ZIP: 545-8522 Execution Date: December 1, 2003 (all Inventors) Additional name(s) & address(es) ☐ Yes ⊠ No 4. Application number(s) or patent numbers(s): 139453 If this document is being filed together with a new application, the execution date of the application is: December 1, 2003 Patent Application No. Filing date B. Patent No.(s) ☐ Yes ☒ No Additional numbers 5. Name and address of party to whom correspondence 6. Total number of applications and patents involved: concerning document should be mailed: Name: David A. Tucker 7. Total fee (37 CFR 3.41):.....\$ 40.00 Registration No. 27,840 ☑ Enclosed - Any excess or insufficiency should be credited or debited to deposit account Address: Edwards & Angell, LLP ☐ Authorized to be charged to deposit account P.O. Box 9169 8. Deposit account number: 04-1105 City: Boston ____ State/Prov.: MA Country: USA ZIP: 02209 (Attach duplicate copy of this page if paying by deposit account) DO NOT USE THIS SPACE

Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

David A. Tucker

Bound d. Zwen

December 17, 2003

Name of Person Signing

Date

12/24/2903 ECOOPER 00000138 19739453 Total number of pages including cover sheet, attachments, and

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ATTORNEY DOCKET N	O.

ASSIGNMENT

	Application No	·		Filed	
Insert Name(s) of Inventor(s)	⇒ WHEREAS,_	Keita HARA,	Masaki HAMAMOTO	and	
		Yoshiji OHT	A		
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	(hansing@an dasiman				
Insert Title of Invention			s (have) invented certain new OBTAIN DETAILED OVE	-	
	INFORMATION	OF OBJECT EFFICI	ENTLY		
		tion for Letters Patent of the approximation of the provisional application).	ne United States of America h	as been executed by the und	ersigned
Insert Date	(except in the case of	a provisional applications.			
of Signing of Application	on Dece	ember 1, 2003			; and
Insert Name of Assignee	→ WHEREAS,_	Sharp Kabus	shiki Kaisha	<u></u>	
Insert Address of Assignee	→ of 22-22, N	agaike-cho, Abenc	o-ku, Osaka-shi, Osa	aka, Japan	
	acquiring the entire		l assigns (hereinafter designa n and to said invention and i s of America and		
IF APPROPRIATE	NOW, THERE	_	of the sum of Ten Dollars (\$	10.00) to the undersioned i	in hand

NOW, THEREFORE, in consideration of the sum of Ten Dollars (\$10.00) to the undersigned in hand paid, the receipt of which is hereby acknowledged, and other good and valuable consideration, the undersigned has (have) sold, assigned and transferred, and by these presents does sell, assign and transfer unto said Assignee the full and exclusive right to the said invention in the United States of America, its territories, dependencies and possessions and the entire right, title and interest in and to any and all Letters Patent(s) which may be granted therefor in the United States of America, its territories, dependencies and possessions, and if the box above is designated, in any and all foreign countries;

and to any and all divisions, reissues, continuations, conversions and extensions thereof for the full term or terms for which the same may be granted.

PATENT REEL: 014817 FRAME: 0188 The undersigned agree(s) to execute all papers necessary in connection with this application and any continuing, divisional, conversion or reissue applications thereof and also to execute separate assignments in connection with such applications as the Assignee may deem necessary or expedient.

The undersigned agree(s) to execute all papers necessary in connection with any interference which may be declared concerning this application or continuation, division, conversion or reissue thereof or Letters Patent(s) or reissue patent issued thereon and to cooperate with the Assignee in every way possible in obtaining and producing evidence and proceeding with such interference.

The undersigned agree(s) to execute all papers and documents and to perform any act which may be necessary in connection with claims or provisions of the International Convention for the Protection of Industrial Property or similar agreements.

The undersigned agree(s) to perform all affirmative acts which may be necessary to obtain a grant of a valid United States of America and any foreign patent(s) to the Assignee and to vest all rights therein hereby conveyed to said Assignee as fully and entirely as the same would have been held by the undersigned if this Assignment and sale had not been made.

The undersigned hereby authorize(s) the request(s) the Patent and Trademark Office Officials in the United States of America and in any foreign countries to issue any and all Letters Patents resulting from said application or any continuing, divisional, conversion or reissue applications thereof to the said Assignee, as Assignee of the entire interest, and hereby covenants that he has (they have) the full right to convey the entire interest herein assigned, and that he has (they have) not executed, and will not execute, any agreement in conflict herewith.

The undersigned hereby grant(s) to Dike, Bronstein, Roberts & Cushman LLP, Intellectual Property Group of EDWARDS & ANGELL LLP, P.O. Box 9169, Boston, Massachusetts 02209, U.S.A., the power to insert on this Assignment any further identification which may be necessary or desirable in order to comply with the rules of the U.S. Patent and Trademark Office for recordation of this document.

The undersigned hereby covenant(s) that no assignment, sale, agreement or encumbrance has been or will be made or entered into which would conflict with this assignment.

In witness whereof, executed by the undersigned on the date(s) opposite the undersigned name(s).

- 1 1 2002	Kerta Wara			
Date December 1, 2003	Name of Inventor Keita HARA			
Date December 1, 2003	Name of Inventor Masaki HAMAMOTO			
	Name of Inventor Yoshiji OHTA			
	Name of Inventor			
Date,	Name of Inventor			
Date ,	Name of Inventor			
Date ,	Name of Inventor			
Date ,	Name of Inventor			
Date	Name of Inventor			

RECORDED: 12/17/2003

PATENT REEL: 014817 FRAME: 0189