UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 10,650,780 B2
APPLICATION NO. : 16/576925
DATED : May 12, 2020
INVENTOR(S) : T. Kurita et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Column (24): Claim 1, Line 45 after “on” insert --the--.

Column (24): Claim 1, Line 45 after “decoded” delete “the”.

Column (24): Claim 1, Line 46 after “images” insert --based on the--.

Column (24): Claim 1, Line 46 after “decoded” delete “the”.

Column (24): Claim 1, Line 46 after the second “second” insert --image--.

Signed and Sealed this
Tenth Day of September, 2024

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

24956 7590 09/10/2024
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
MICHAUD, ROBERT J	

ART UNIT	PAPER NUMBER
2694	

NOTIFICATION DATE	DELIVERY MODE
09/10/2024	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmiplaw.com

APPLICATION NO.	ISSUE DATE	PATENT NO.
16/576,925	10-Sep-2024	10650780

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
ALEXANDRIA, VA 22314

ELECTRONIC CERTIFICATE OF CORRECTION NOTIFICATION

Your electronic certificate of correction is now available, and can be accessed via Patent Center at https://patentcenter.uspto.gov.

The electronic certificate of correction is the official certificate of correction under 35 U.S.C. 254 or 255. For more information, please visit https://www.uspto.gov/electronicgrants.

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 3 of 398

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

24956 7590 08/12/2024
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
MICHAUD, ROBERT J	

ART UNIT	PAPER NUMBER
2694	

NOTIFICATION DATE	DELIVERY MODE
08/12/2024	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmiplaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No.: 10650780
Issue Date: 05/12/2020
Appl. No.: 16/576,925
Filed: 09/20/2019

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 09 April 2024.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)
☑ Approved ☐ Approved in Part ☐ Denied

Comments: ____

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

☐ This is a decision on the petition filed ____ to correct inventorship under 37 CFR 1.324.

☐ This is a decision on the request under 37 CFR 1.48, petition filed ____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: ☐ Granted ☐ Dismissed

Comment: ____

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/PATRICK N EDOUARD/
Supervisory Patent Examiner, Art Unit 2622
Technology Center 2600
Phone: (571)272-7603

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO.: 10650780

DATED: 08/08/2024

INVENTOR(S): Kurita et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/576,925	**04/09/2024 09:35:37 AM Z ET**	**ASA-10783-09**

Title of Invention

DISPLAY APPARATUS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10650780
CONFIRMATION #	2343	FILED BY	Krista Hargrove
PATENT CENTER #	64998641	FILING DATE	09/20/2019
CUSTOMER #	24956	FIRST NAMED INVENTOR	Toshiyuki Kurita
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	John Mattingly

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
10783-09_Req_Cert_Correction.pdf	2	Request for Certificate of Correction	17 KB
10783-09-CertificateofCorrectionform1050.pdf	2	Request for Certificate of Correction	150 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
10783-	E1597985473056B37CD40788A14EC5CF2DE6F0AC7C088B6B0

09_Req_Cert_Correction.pdf	D989BD3354A4E8046F50C8494582DEB02AA7E00E65BB0643C911331E37B397B90F141A345F2D587
10783-09-CertificateofCorrectionform1050.pdf	10653C53199F984E17C00EAC52283256335B0E7BC57AD3E9C820D47032B39ED627F187F77BB38133C0591C5833502DD3A35E72BFC662E8D8637B0868F73EAE5

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 8 of 398

UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
16/576,925	04/09/2024 09:35:37 AM Z ET	ASA-10783-09

Title of Invention

DISPLAY APPARATUS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	10650780
CONFIRMATION #	2343	FILED BY	Krista Hargrove
PATENT CENTER #	64998641	AUTHORIZED BY	John Mattingly
CUSTOMER #	24956	FILING DATE	09/20/2019
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Toshiyuki Kurita

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
CARD / 1019	E202449036266811	Krista Hargrove

PRE-AUTHORIZED ACCOUNT

501417

PRE-AUTHORIZED CATEGORY

37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges)

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
1811	CERTIFICATE OF CORRECTION	160.00	1	160.00
			TOTAL AMOUNT:	$160.00

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	: 16/576,925	Confirmation No.	: 2343
Inventor(s)	: T. KURITA, et al.	TC/GAU	: 2694
Filed	: September 20, 2019	Patent No.:	10,650,780
Title	: DISPLAY APPARATUS		
Docket No.	: ASA-10783-09		
Customer No.: 24956			

CERTIFICATE OF CORRECTION OF APPLICANT MISTAKE
U.S. PATENT NO. 10,650,780

Director of the U.S. Patent Office
Office of Patent Publications
ATTN: Certificate of Correction Branch
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: April 9, 2024

Sir:

Please issue a Certificate of Correction for the above-identified patent to correct the errors listed on the accompanying Form PTO/SB/44.

Pursuant to MPEP §1481, it is submitted that the mistake is either:

(1) of a clerical nature,

(2) of a typographical nature, or

(3) a mistake of minor character.

Furthermore, it is submitted that the correction does not involve changes which would:

(1) constitute new matter, or

(2) require reexamination.

In claim 1, at column 24, line 45 after “on” the word –the-- is inserted and after “decoded” the word “the” is deleted.

In claim 1, column 24, line 46, after “images” the words --based on the-- are inserted, after the word “decoded” the word “the” is deleted and after “second” the word –image-- is inserted.

Since the Certificate of Correction is necessitated by a mistake on the part of the Applicants, in accordance with 37 CFR §1.20(a) our Credit Card Payment Form in the amount of $160.00 is attached in payment of the appropriate fee. The Commissioner is hereby authorized to charge additional payment due or to credit any overpayment, to Deposit Account No. 50-1417.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly, Reg. No. 30,293
(703) 684-1120

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 12 of 398

PTO/SB/44 (09-07)
Approved for use through 01/31/2020. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,650,780

APPLICATION NO.: 16/576,925

ISSUE DATE : May 12, 2020

INVENTOR(S) : T. KURITA, et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column (24): Claim 1, line 45 after “on” insert --the--.

Column (24): Claim 1, line 45 after “decoded” delete "the".

Column (24): Claim 1, line 46 after “images” insert --based on the--.

Column (24): Claim 1, line 46 after “decoded” delete "the".

Column (24): Claim 1, line 46 after the second “second” insert --image--.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

John R. Mattingly
MATTINGLY & MALUR, PC
1800 Diagonal Road – Suite 210

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	05/12/2020	10650780	ASA-10783-09	2343

24956 7590 04/22/2020

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Toshiyuki Kurita, Yokohama, JAPAN;
Maxell, Ltd., Kyoto, JAPAN;
Hitoaki Owashi, Yokohama, JAPAN;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	: 16/576,925	Confirmation No.	: 2343
Inventor(s)	: T. KURITA et al.	TC/GAU	: 2693
Filed	: September 20, 2019	Examiner	: R. MICHAUD
Title	: DISPLAY APPARATUS		
Docket No.	: ASA-10783-09		
Customer No.: 24956			

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Mail Stop: ISSUE FEE
Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: April 9, 2020

Sir:

In accordance with MPEP 1302.14(V), Applicant provides the following comments on the statement of reasons for allowance provided in the Notice of Allowability mailed January 10, 2020. In the Notice of Allowability, referring to numbered paragraph 4 on page 3 of the Notice, the Examiner states:

> Independent claims 1, 15 and 20 claims a display apparatus which transmits a picture acquisition request for getting picture information to an external image apparatus connected through a predetermined interface to the display apparatus from the external image apparatus at predetermined intervals and gets a plurality of pieces of picture information from the external image apparatus to be displayed.

However, none of claims 1, 15 and 20 includes the terminology attributed to the claim language described by the Examiner. Mainly, none of claims 1, 15 and 20 sets forth “a display apparatus which transmits a picture acquisition request for getting picture information to an external image apparatus connected through a

predetermined interface to the display apparatus from the external image apparatus at predetermined intervals and gets a plurality of pieces of picture information from the external image apparatus to be displayed."

Entry of the foregoing comments made by Applicant on the Examiner's statement of reasons for allowance is respectfully requested.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Reg. No. 30,293,
(703) 684-1120

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 17 of 398

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24956 7590 01/10/2020
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

TITLE OF INVENTION: DISPLAY APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/10/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
MICHAUD, ROBERT J	2693	345-156000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 MATTINGLY & MALUR, PC
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Maxell, Ltd.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Kyoto, Japan

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ☑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ☑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 50-1417

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /John R. Mattingly/ Date April 9, 2020

Typed or printed name John R. Mattingly Registration No. 30,293

Electronic Patent Application Fee Transmittal

Application Number:	16576925
Filing Date:	20-Sep-2019
Title of Invention:	DISPLAY APPARATUS
First Named Inventor/Applicant Name:	Toshiyuki Kurita
Filer:	John Roberts Mattingly/Mariah Duell
Attorney Docket Number:	ASA-10783-09

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1000**

Electronic Acknowledgement Receipt

EFS ID:	39113187
Application Number:	16576925
International Application Number:	
Confirmation Number:	2343
Title of Invention:	DISPLAY APPARATUS
First Named Inventor/Applicant Name:	Toshiyuki Kurita
Customer Number:	24956
Filer:	John Roberts Mattingly/Mariah Duell
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-10783-09
Receipt Date:	09-APR-2020
Filing Date:	20-SEP-2019
Time Stamp:	15:16:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	E202049F17099553
Deposit Account	501417
Authorized User	Mariah Duell

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Post Allowance Communication - Incoming	10783-09-Comments_on_Reasons_For_Allowance_20200409.pdf	15868 cec3ef5d3a44cb298534fd97f34e10d2be366554	no	2
Warnings:					
Information:					
2	Issue Fee Payment (PTO-85B)	10783-09_IssueFee-payment_20200409.pdf	86649 0729cfa577fc0e6208b7f1e501e5515495a81f78	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	29974 26b209fa12a92ff67b21858da7fd71876f935468	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	132491		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

24956 7590 01/10/2020

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER
MICHAUD, ROBERT J

ART UNIT	PAPER NUMBER
2693	

DATE MAILED: 01/10/2020

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

TITLE OF INVENTION: DISPLAY APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/10/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24956 7590 01/10/2020
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

TITLE OF INVENTION: DISPLAY APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	04/10/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
MICHAUD, ROBERT J	2693	345-156000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

24956 7590 01/10/2020

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
MICHAUD, ROBERT J	

ART UNIT	PAPER NUMBER
2693	

DATE MAILED: 01/10/2020

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/576,925	Applicant(s) Kurita et al.	
	Examiner ROBERT J MICHAUD	Art Unit 2693	AIA (FITF) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE 12/12/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:

   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)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ROBERT J MICHAUD/
Examiner, Art Unit 2693

Notice of Pre-AIA or AIA Status

The present application is being examined under the pre-AIA first to invent provisions.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/12/2019 has been entered.

Terminal Disclaimer

2. The terminal disclaimer filed on 10/24/2019 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patents 10,037,744; 10,354,612; 10,339,893; 9,858,888; 9,218,783; 8,908,095 and 8,446,528 as well as copending Application 16/424,804 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Reason for Allowance

3. Claims 1-20 are allowed

4. Independent claims 1, 15 and 20 claims a display apparatus which transmits a picture acquisition request for getting picture information to an external image apparatus connected through a predetermined interface to the display apparatus from the external image apparatus at predetermined intervals and gets a plurality of pieces of picture information from the external image apparatus to be displayed. The plurality of pictures may be switched at predetermined intervals, for example, to be displayed, so that the plurality of pictures may be displayed in a so-called slide show manner. A plurality of pictures for thumbnail may be produced from the plurality of pieces of picture information and be arranged together to be displayed in one picture screen of a display device, in a manner not disclose or suggested in any prior art.

The representative closest prior art is Nozaki et al., US Patent Application Publication (20040150724), hereinafter “Nozaki” and Kioke US Patent Application Publication (20080180551), hereinafter “Kioke” which do not teach the features claimed of: Claim 1 and similarly worded claims 15 and 20, all of which include the following limitations in their claims: 1. “An image display apparatus, comprising: … a first signal to the digital camera for causing the digital camera to output compressed first image information corresponding to first still pictures, and receives, over the cable, the compressed first image information corresponding to first still pictures output from the digital camera, the decoder decodes the compressed first image information corresponding to first still pictures received by the USB interface circuitry, and the display screen displays a slide show at predetermined time intervals with the first still pictures, as the first images, based on the decoded first image information obtained by the decoder, and wherein if displaying the second images on the display screen, based

on an operation on the input device of the image display apparatus for conducting a slide show, the wireless LAN interface circuitry wirelessly transmits, over the network, a second signal to the digital camera for causing the digital camera to output compressed second image information corresponding to second still pictures, and wirelessly receives, over the network, the compressed second image information corresponding to second still pictures output from the digital camera, the decoder decodes the compressed second image information corresponding to second still pictures received by the wireless LAN interface circuitry, and the display screen displays a slide show at predetermined time intervals with the second still pictures, as the second images, based on the decoded second image information obtained by the decoder.".

In regards to claims 1, 15 and 20 the representative prior art is Nozaki and Kioke. Nozaki discloses a digital camera system connecting plural units of digital cameras and letting the camera collaborate to work. Nozaki's invention provides a digital camera system includes a first digital camera and a second digital camera, wherein the first digital camera and the second digital camera are capable of communicating with each other and the first digital camera further includes a first input/output device that sends/receives a data to and from the second digital camera... a first controller that controls the first digital camera based upon an operation of any of the second plurality of operating devices. Nozaki further discloses that with an instruction of reproduction, an automatic change of reproduced image data to be displayed can be made like a "slide show" involving the other digital camera

Kioke discloses an image pickup apparatus and a control method for the image pickup apparatus, to an image display apparatus and a control method for the

image display apparatus, and to a recording medium, and more particularly, to storing of still image data in a moving image format and transmission of the still image data stored in the moving image format. Kioke further discloses control commands include information, such as a request for transfer of still image data, a transfer response for still image data, the sizes of the frame memories 11 and 21, the position of an image where a slide show starts, and the like

In regards to claims 1, 15 and 20 Nozaki nor Kioke, alone, or in combination, do not provide a teaching, a suggestion or a motivation that could be found either in the art or within the skill of one of ordinary skill in the art at the time of the invention to modify or combine the prior art to disclose the cited claim limitations above of the claimed invention. Claims 2-10 and 16-19 depend from claims 1 and 15 respectively and as such the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT J MICHAUD whose telephone number is (571)270-3981. The examiner can normally be reached on 8:30 - 5:00.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Lee can be reached on 571-272-2963. 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.

/ROBERT J MICHAUD/
Examiner, Art Unit 2693

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

CPC							
Symbol						**Type**	**Version**
G09G	/	5	/	006		F	2013-01-01
H04N	/	1	/	00164		I	2013-01-01
H04N	/	1	/	00172		I	2013-01-01
H04N	/	1	/	00198		I	2013-01-01
H04N	/	1	/	00347		I	2013-01-01
H04N	/	1	/	00442		I	2013-01-01
H04N	/	1	/	00453		I	2013-01-01
H04N	/	1	/	00458		I	2013-01-01
H04N	/	1	/	00461		I	2013-01-01
H04N	/	21	/	4122		I	2013-01-01
H04N	/	21	/	4223		I	2013-01-01
H04N	/	21	/	43632		I	2013-01-01
H04N	/	21	/	43637		I	2013-01-01
H04N	/	21	/	43853		I	2013-01-01
H04N	/	21	/	440263		I	2013-01-01
H04N	/	21	/	4438		I	2013-01-01
H04N	/	21	/	4627		I	2013-01-01
H04N	/	21	/	6112		I	2013-01-01
H04N	/	21	/	6131		I	2013-01-01
G09G	/	5	/	005		I	2013-01-01
H04N	/	1	/	00129		I	2013-01-01
G06F	/	3	/	0481		I	2013-01-01
G06T	/	1	/	0007		I	2013-01-01
H04N	/	1	/	00177		I	2013-01-01
H04N	/	21	/	43635		I	2013-01-01
H04N	/	1	/	00137		I	2013-01-01
G09G	/	2370	/	12		A	2013-01-01
H04N	/	1	/	00307		A	2013-01-01
H04N	/	2201	/	0049		A	2013-01-01
H04N	/	2201	/	0055		A	2013-01-01
H04N	/	2201	/	0084		A	2013-01-01

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	23 December 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20191223

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 33 of 398

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

CPC								
Symbol							**Type**	**Version**
H04N	/	2201	/	0086			A	2013-01-01
H04N	/	2201	/	0087			A	2013-01-01
H04N	/	2201	/	0089			A	2013-01-01
G06F	/	3	/	0482			A	2013-01-01
G09G	/	2340	/	02			A	2013-01-01
G09G	/	2354	/	00			A	2013-01-01
G09G	/	2360	/	02			A	2013-01-01

CPC Combination Sets									
Symbol							**Type**	**Set**	**Ranking**	**Version**
	/		/							

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	23 December 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20191223

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 34 of 398

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G09G5/00	/	5	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	23 December 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20191223

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 35 of 398

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12												
4	4	13	13												
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	23 December 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20191223

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 36 of 398

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	Art Unit
	ROBERT J MICHAUD	2693

CPC - Searched*		
Symbol	Date	Examiner
(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc.	10/27/2019	RM
G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc.	12/23/2019	RM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc.	10/27/2019	RM
G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc.	12/23/2019	RM

/ROBERT J MICHAUD/ Examiner, Art Unit 2693	

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 37 of 398

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	Art Unit
	ROBERT J MICHAUD	2693

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	(decoder and (uncompressed near3 image) and (slide adj show)).clm.	10/27/2019	RM
	(decoder and (uncompressed near3 image) and (slide adj show)).clm.	12/22/2019	RM

/ROBERT J MICHAUD/ Examiner, Art Unit 2693	

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 38 of 398

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16576925
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	2693
Examiner Name	MICHAUD, R. J.
Attorney Docket Number	ASA-10783-09

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030095196	A1	2003-05-22	MISAWA	Corresponds to Foreign Patent Document 1

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2003-158704 w/abs	JP	A	2003-05-30	FUJI PHOTO FILM CO LTD	Corresponds to U.S. Publication Document 1	
	2	2006-108749 w/abs	JP	A	2006-04-20	TOSHIBA CORP		X

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

/ROBERT J MICHAUD/ 12/23/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16576925
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	2693
Examiner Name	MICHAUD, R. J.
Attorney Docket Number	ASA-10783-09

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Japanese Office Action received in corresponding Japanese Application No. 2018-175553 dated August 6, 2019	X

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/ROBERT J MICHAUD/	Date Considered	12/23/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16576925
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	2693
Examiner Name	MICHAUD, R. J.
Attorney Docket Number	ASA-10783-09

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-12-12
Name/Print	John R. Mattingly	Registration Number	30,293

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"20070277216"	USPAT	OR	OFF	2018/08/16 15:05
S2	5	((first and second) and (camera phone (potrable adj (terminal device)) apparatus)) same ((wireless LAN network) near6 (USB and HDMI))	USPAT	OR	OFF	2018/08/16 15 25
S3	16	((first and second) and (camera phone (potrable adj (terminal device)) apparatus)) same ((wireless LAN network) near6 (USB and HDMI))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 15:27
S4	4	S3 and compress$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 15:27
S5	54	((send receive transmit broadcast) near3 ((images video) near6 camera)) same USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:33
S6	38	((send receive transmit transfer) near3 (images video)) near6 camera with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:36
S7	0	((send receive transmit transfer) near3 (images video)) near6 ((first and second) near5 (device apparatus tv phone camera)) with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:38
S8	5	((send receive transmit transfer) near3 (images video)) near6 ((first and second) and (device apparatus tv phone camera)) with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:54
S9	4	"56008463".FMID.	US-PGPUB; USPAT; FPRS	OR	OFF	2018/08/16 19:57
S10	15	((send receive transmit transfer) near3 (images video)) with ((first and second) near5 (device apparatus tv phone camera)) with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:57
S11	5	"8446528"	USPAT	OR	OFF	2018/08/18 14:32
S12	0	receive same (video near3 (stream data)) with hdmi near3 conect$4	USPAT	OR	OFF	2018/08/18 14:35
S13	0	receive same (video near3 (stream data)) with hdmi near3 conect$4	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:36
S14	0	(video near3 (stream data)) with hdmi near3 conect$4	USPAT; EPO; JPO; DERWENT	O R	OFF	2018/08/18 14:36
S15	336703	(video near3 (stream data))	USPAT;	OR	OFF	2018/08/18

			EPO; JPO; DERWENT			14:36
S16	1944	(video near3 (stream data)) with HDMI	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:37
S17	316	(video near3 (stream data)) with HDMI near3 connect$4	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:37
S18	239	(video near3 (stream data)) with HDMI near3 connect$4 and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:37
S19	21	(video near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:38
S20	459	(video near3 (stream data)) with ((USB HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:38
S21	15	(image near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:38
S22	2	"20090129692"	USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:43
S23	3	"20090129692"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:45
S24	15	(image near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:45
S25	39	(image near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:45
S26	547	(image near3 (stream data)) with ((USB HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 15:02
S27	132	((image video) near6 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 15:02
S28	598	(video near3 (stream data)) with HDMI near3 connect$4 and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 15:10
S29	300	(image near3 (stream data)) with HDMI near3 connect$4 and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 15:10
S30	1	(image near3 (stream data)) with HDMI near3 connect$4 and receive and slideshow	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 20:22
S31	12	(image near3 (stream data)) with usb near3 connect$4 and receive and slideshow	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 20:23
S32	1080	(image near3 (stream data)) with usb	US-PGPUB;	OR	OFF	2018/08/18

		near3 connect$4 and receive	USPAT; EPO·, JPO·, D ERWENT			20:25
S33	93	(image near3 (stream data)) with usb near3 connect$4 and receive and HD MI	US-PGPUB; USPAT; EPO·, JPO·, D ERWENT	OR	OFF	2018/08/18 20:25
S34	0	"20010150724"	US-PGPUB; USPAT; EPO·, JPO·, D ERWENT	OR	OFF	2018/08/18 20:35
S35	3	"20040150724"	US-PGPUB; USPAT; EPO·, JPO; D ERWENT	OR	OFF	2018/08/18 20:36
S36	3	"20050083414"	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	OFF	2018/08/18 20:36
S37	24	(camera near6 (television tv computer phone)) with ((USB and HD MI) near3 connect$4) and receive	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/18 20:41
S38	21	(image near3 (stream data)) with usb near3 connect$4 and slideshow	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	OFF	2018/08/18 21:05
S39	101	(camera near6 (television tv computer phone)) with usb near3 connect$4 and slideshow	US-PGPUB; USPAT; EPO·, JPO; D ERWENT	OR	ON	2018/08/18 21:11
S40	2057	(camera near6 (television tv computer phone)) with usb near3 connect$4 and receive	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	ON	2018/08/19 13:32
S41	0	(camera near6 (television tv computer phone)) with usb near3 (connect$4 with ((receive and transmit) near5 image))	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:33
S42	2	(camera near6 (television tv computer phone)) with usb near3 connect$4 with ((receive and transmit) near5 image)	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:34
S43	352013	(camera near6 (television tv computer phone)) near10 usb nsame connect$4 near5 image	US-PGPUB; USPAT; EPO·, JPO; D ERWENT	OR	ON	2018/08/19 13:35
S44	344	(camera near6 (television tv computer phone)) near10 usb same connect$4 near5 image	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	ON	2018/08/19 13:35
S45	185	(camera near6 (television tv computer phone)) near10 usb same connect$4 and (slideshow (slide adj show))	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:36
S46	665	images and (television tv computer phone) near10 usb same (decode decompress$4)	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:47

S47	200	images and (television tv display) near10 usb same (decode decompress$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/19 13:47
S48	8	images and (television tv display) near10 usb same (decode decompress$4) and (slideshow (slide adj show))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/19 13:58
S49	0	"20080120676"	USPAT	OR	OFF	2018/08/20 13:57
S50	0	"20080120676"	USPAT	OR	OFF	2018/08/20 13:57
S51	1	"20080120676"	US-PGPUB; USPAT	OR	OFF	2018/08/20 13:58
S52	3	"15287403"	US-PGPUB; USPAT	OR	OFF	2018/08/20 14:34
S53	2	"20040150724"	US-PGPUB; USPAT	OR	OFF	2018/08/22 19:55
S54	2	"20080180551"	US-PGPUB; USPAT	OR	OFF	2018/08/22 19:58
S55	2	"20060192791"	US-PGPUB; USPAT	OR	OFF	2018/08/22 20:37
S56	32	((("Kurita") near3 ("Toshiyuki"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:33
S57	12	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:34
S58	0	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and drcoder	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:34
S59	12	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:34
S60	0	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder and slideshow	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:35
S61	11	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder and slide adj show	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:35
S62	3	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder and ((slide adj show) near4 predetermined)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:36
S63	195	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:41
S64	3	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and ((slide adj show) near4 predetermined)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:41
S65	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and (slide adj show)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:41
S66	12	(G09G5/006 G09G5/006 G06F3/0481	US-PGPUB;	OR	OFF	2018/08/24

		G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and (slide adj show slideshow)	USPAT; USOCR			07:42
S67	12	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and ((slide adj show) slideshow)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:42
S68	36	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB HDMI) and decoder and ((slide adj show) slideshow)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:42
S69	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4)) and ((slide adj show) slideshow)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:43
S70	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4)) and ((slide adj show) slideshow)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/24 07:44
S71	54	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/24 07:44
S72	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4)) and rotation	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/24 07:45

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S73	0	(((Universal near3 Serial) USB) with ((High near3 definition) HDMI) same decoder and selector).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:22
S74	6151	(decoder and selector).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:22
S75	2	(decoder and selector and (uncompressed near3 image)).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:23
S76	0	(decoder and selector and (uncompressed near3 image) and (slide adj show)).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:25
S77	1	(decoder and (uncompressed near3 image) and (slide adj show)).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:25

12/23/2019 9:40:58 AM
C:\Users\rmichaud\Documents\Applications\16576925\6925.wsp

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09

CONFIRMATION NO. 2343

PUBLICATION NOTICE

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

OC000000113834997

Title:DISPLAY APPARATUS

Publication No.US-2020-0013368-A1
Publication Date:01/09/2020

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 49 of 398

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16576925	Filing Date	2019-09-20	Docket Number (if applicable)	AS A-10783-09	Art Unit	2693
First Named Inventor	KURITA, T.			Examiner Name	MICHAUD, R. J.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☐ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 501417

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-12-12
Name	John R. Mattingly	Registration Number	30293

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16576925
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	2693
Examiner Name	MICHAUD, R. J.
Attorney Docket Number	ASA-10783-09

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030095196	A1	2003-05-22	MISAWA	Corresponds to Foreign Patent Document 1

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2003-158704 w/abs	JP	A	2003-05-30	FUJI PHOTO FILM CO LTD	Corresponds to U.S. Publication Document 1	
	2	2006-108749 w/abs	JP	A	2006-04-20	TOSHIBA CORP		X

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16576925
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	2693
Examiner Name	MICHAUD, R. J.
Attorney Docket Number	ASA-10783-09

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Japanese Office Action received in corresponding Japanese Application No. 2018-175553 dated August 6, 2019	X

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	16576925
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	2693
	Examiner Name	MICHAUD, R. J.
	Attorney Docket Number	ASA-10783-09

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-12-12
Name/Print	John R. Mattingly	Registration Number	30,293

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Espacenet

Bibliographic data: JP2003158704 (A) — 2003-05-30

CAMERA SYSTEM, DIGITAL CAMERA, AND METHOD FOR CONTROLLING THE SAME

Inventor(s): MISAWA TAKASHI ± (MISAWA TAKASHI)

Applicant(s): FUJI PHOTO FILM CO LTD ± (FUJI PHOTO FILM CO LTD)

Classification: - **international:** ***G06F12/14; G06F12/16; G06F21/02; G06F21/24; H04N5/225; H04N5/765; H04N5/77; H04N5/907; H04N101/00; H04N9/804;*** (IPC1-7): G06F12/14; G06F12/16; H04N101/00; H04N5/225; H04N5/765; H04N5/907

- **cooperative:** H04N5/772 (EP); H04N5/907 (EP); H04N9/8047 (EP)

Application number: JP20010356650 20011121

Priority number(s): JP20010356650 20011121

Also published as: JP3877577 (B2) US2003095196 (A1) US7405753 (B2)

Abstract of JP2003158704 (A)


First page clipping of JP2003158704 (A)

PROBLEM TO BE SOLVED: To provide a camera system capable of easily erasing picture data whose erasure is inhibited when the picture data are backed up. SOLUTION: In a personal computer to which a digital camera is connected through a cradle, the depression stand-by of a fetch button (which is not sown in Fig.) is set, and then a picture file stored in the recording media of a digital camera and a setting file in which the setting situations of various processing are stored are read (300, 302). Then, read picture data are stored on a hard disk, and when the value of backup protection variables set in the setting file indicates the protection of the stored picture file, the read only attributes of the picture file are set, and when the value of automatic erasure variables set in the setting file indicates automatic erasure, and the number of times of storage of the picture file is not less than the number of times set in the setting file, the picture file is erased from the recording media (304-318).

(19)日本国特許庁（ＪＰ）　(12)公開特許公報（Ａ）　(11)特許出願公開番号
特開2003－158704
（P2003－158704A）
(43)公開日　平成15年５月30日(2003.5.30)

(51)Int.Cl.⁷	識別記号	ＦＩ		テーマコード（参考）
Ｈ０４Ｎ　5/765		Ｇ０６Ｆ　12/14	３１０Ｆ	５Ｂ０１７
Ｇ０６Ｆ　12/14	３１０	12/16	３１０Ｍ	５Ｂ０１８
12/16	３１０	Ｈ０４Ｎ　5/225	Ｆ	５Ｃ０２２
Ｈ０４Ｎ　5/225		5/907	Ｂ	５Ｃ０５２
5/907		101:00		５Ｃ０５３

審査請求　未請求　請求項の数14　ＯＬ　（全 24 頁）　最終頁に続く

(21)出願番号　特願2001－356650(P2001－356650)

(22)出願日　平成13年11月21日(2001.11.21)

(71)出願人　000005201
富士写真フイルム株式会社
神奈川県南足柄市中沼210番地

(72)発明者　三沢　岳志
埼玉県朝霞市泉水３丁目11番46号　富士写真フイルム株式会社内

(74)代理人　100079049
弁理士　中島　淳　（外３名）

最終頁に続く

(54)【発明の名称】　カメラシステム、デジタルカメラ、及びデジタルカメラの制御方法

(57)【要約】
【課題】　消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができるカメラシステムを得る。
【解決手段】　デジタルカメラがクレードルを介して接続されたパソコンにおいて、不図示の取込ボタンの押下待ちを行った後、デジタルカメラの記録メディアに記憶されている画像ファイルと各種処理の設定状況が記憶された設定ファイルを読み込む(300,302)。そして、読み込んだ各画像データをハードディスクに記憶し、上記設定ファイルで設定されているバックアップ保護変数の値が記憶した画像ファイルの保護を示すものである場合に、当該画像ファイルのリードオンリー属性を設定し、上記設定ファイルで設定されている自動消去変数の値が自動消去を示すものである場合でかつ記憶した画像ファイルの記憶回数が上記設定ファイルで設定されている回数以上である場合に、当該画像ファイルを上記記録メディアから消去する(304～318)。

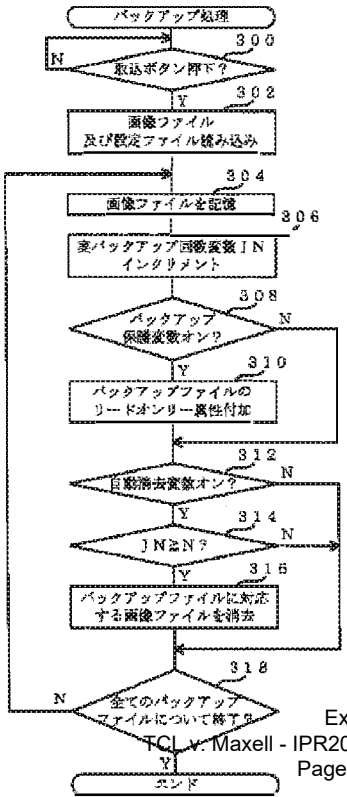


Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 58 of 398

【特許請求の範囲】

【請求項１】　撮影によって得られた画像データを記憶する記憶手段、前記記憶手段に記憶された画像データを外部に送信する送信手段、前記記憶手段からの前記画像データの消去の禁止を指示する指示情報を入力する入力手段、及び前記指示情報に応じて前記画像データの消去の禁止を設定する設定手段を備えたデジタルカメラと、
前記送信手段によって送信された画像データを受信する受信手段、前記受信手段によって受信された画像データを記憶するバックアップ記憶手段、及び前記バックアップ記憶手段に記憶された画像データが前記消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御する制御手段を備えた外部装置と、
を含むカメラシステム。

【請求項２】　前記入力手段は、前記制御手段による解除の条件として解除対象とする画像データの前記バックアップ記憶手段に記憶された回数を示す回数情報を更に入力し、
前記送信手段は、前記回数情報を更に外部に送信し、
前記受信手段は、前記回数情報を更に受信し、
前記制御手段は、前記回数情報によって示される回数だけ前記解除対象とする画像データが前記バックアップ記憶手段に記憶された場合に当該画像データに設定された消去の禁止を解除するように制御する請求項１記載のカメラシステム。

【請求項３】　前記制御手段は、前記バックアップ記憶手段に記憶された画像データを前記記憶手段から消去するように制御する請求項１記載のカメラシステム。

【請求項４】　前記入力手段は、前記制御手段による消去の条件として消去対象とする画像データの前記バックアップ記憶手段に記憶された回数を示す回数情報を更に入力し、
前記送信手段は、前記回数情報を更に外部に送信し、
前記受信手段は、前記回数情報を更に受信し、
前記制御手段は、前記回数情報によって示される回数だけ前記消去対象とする画像データが前記バックアップ記憶手段に記憶された場合に当該画像データを前記記憶手段から消去するように制御する請求項３記載のカメラシステム。

【請求項５】　前記指示情報を、それ以降の撮影によって得られた画像データの消去の禁止を指示するものとした請求項１乃至請求項４の何れか１項記載のカメラシステム。

【請求項６】　前記入力手段は、前記送信手段により送信する画像データの消去を禁止するか否かを示す消去禁止情報を更に入力し、
前記送信手段は、前記消去禁止情報を更に外部に送信し、
前記受信手段は、前記消去禁止情報を更に受信し、
前記制御手段は、前記消去禁止情報が消去を禁止することを示す場合に、前記画像データの前記バックアップ記憶手段からの消去の禁止を設定するように制御する請求項１乃至請求項５の何れか１項記載のカメラシステム。

【請求項７】　撮影によって得られた画像データを記憶する記憶手段と、
前記記憶手段からの前記画像データの消去の禁止を指示する指示情報を入力する入力手段と、
前記指示情報に応じて前記画像データの消去の禁止を設定する設定手段と、
前記記憶手段に記憶された画像データを外部記憶装置に記憶する外部記憶手段と、
前記外部記憶手段によって前記外部記憶装置に記憶された画像データが前記消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御する制御手段と、
を備えたデジタルカメラ。

【請求項８】　前記入力手段は、前記制御手段による解除の条件として解除対象とする画像データの前記外部記憶装置に記憶された回数を示す回数情報を更に入力し、
前記制御手段は、前記回数情報によって示される回数だけ前記解除対象とする画像データが前記外部記憶装置に記憶された場合に当該画像データに設定された消去の禁止を解除するように制御する請求項７記載のデジタルカメラ。

【請求項９】　前記制御手段は、前記外部記憶装置に記憶された画像データを前記記憶手段から消去するように制御する請求項７記載のデジタルカメラ。

【請求項１０】　前記入力手段は、前記制御手段による消去の条件として消去対象とする画像データの前記外部記憶装置に記憶された回数を示す回数情報を更に入力し、
前記制御手段は、前記回数情報によって示される回数だけ前記消去対象とする画像データが前記外部記憶装置に記憶された場合に当該画像データを前記記憶手段から消去するように制御する請求項９記載のデジタルカメラ。

【請求項１１】　前記指示情報を、それ以降の撮影によって得られた画像データの消去の禁止を指示するものとした請求項７乃至請求項１０の何れか１項記載のデジタルカメラ。

【請求項１２】　前記入力手段は、前記外部記憶装置に記憶する画像データの当該外部記憶装置からの消去を禁止するか否かを示す消去禁止情報を更に入力し、
前記制御手段は、前記消去禁止情報が消去を禁止することを示す場合に、前記画像データの前記外部記憶装置からの消去の禁止を設定するように制御する請求項７乃至請求項１１の何れか１項記載のデジタルカメラ。

【請求項１３】　撮影によって得られた画像データを記憶する記憶手段を備えたデジタルカメラの制御方法であって、

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 59 of 398

前記記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該画像データが前記記憶手段からの消去の禁止が設定されたものであった場合に当該消去の禁止を解除するように制御するデジタルカメラの制御方法。

【請求項１４】　撮影によって得られた画像データを記憶する記憶手段を備えたデジタルカメラの制御方法であって、

前記記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該画像データを前記記憶手段から消去するように制御するデジタルカメラの制御方法。

【発明の詳細な説明】

【０００１】

【発明の属する技術分野】本発明は、カメラシステム、デジタルカメラ、及びデジタルカメラの制御方法に係り、特に、デジタルカメラによる撮影によって得られた画像データのバックアップデータを作成するカメラシステム、撮影によって得られた画像データを外部に転送することができるデジタルカメラ、及び当該デジタルカメラの制御方法に関する。

【０００２】

【従来の技術及び発明が解決しようとする課題】近年、ＣＣＤ（Charge Coupled Device）等の固体撮像素子を用いて被写体の撮像を行い、当該撮像によって得られた被写体像を示すデジタル画像データをスマートメディアやコンパクト・フラッシュ等の可搬型の記録メディアに記録することができるデジタルスチルカメラやデジタルビデオカメラ等のデジタルカメラが普及している。

【０００３】ところで、この種のデジタルカメラでは、上記記録メディアに記録した画像データを保護（プロテクト）する方法として、主に次の２種類の方法が採られている。

１．プロテクトする画像データをユーザが一つ一つ選択して、選択した画像データ毎にリードオンリー（Read Only）属性を持たせる方法。

２．記録済みの全ての画像データに一括してリードオンリー属性を持たせる方法。

【０００４】以下、上記２種類のプロテクト方法の各々の一例を具体的に説明する。まず、図１５を参照して、選択した画像データ毎にリードオンリー属性を持たせる方法について説明する。

【０００５】ユーザは、まず、デジタルカメラに設けられている液晶ディスプレイ等で構成された画像モニタ４０にメニューを表示させるために用意された不図示のメニュー／実行スイッチを押圧操作する。これに応じてデジタルカメラの画像モニタ４０には、図１５（Ａ）に示すメニュー画面が表示される。

【０００６】次にユーザは、当該メニュー画面から鍵型マークで示されるプロテクト・メニューを、画像モニタ４０の表示領域における上下左右の４方向の移動方向を示す矢印キーが設けられた不図示の操作スイッチの操作によって選択する。これによってデジタルカメラの画像モニタ４０には、図１５（Ｂ）に示すプロテクト・メニューが表示される。そこでユーザは、当該プロテクト・メニューの「１コマセット」を上記操作スイッチの操作によって指定する。これに応じてデジタルカメラの画像モニタ４０には、撮影によって記録メディアに既に記録されている画像データによって示される画像がサムネール（Thumbnail）として表示される。そこでユーザは、当該サムネールから、プロテクトをかけたい画像を上記操作スイッチの操作によって指定する。これに応じてデジタルカメラの画像モニタ４０には、図１５（Ｃ）に示す再確認を促す画面が表示される。そこでユーザは、指定した画像に対応する画像データにプロテクトをかける場合は上記メニュー／実行スイッチを押圧操作し、キャンセルする場合には不図示のキャンセル／戻るスイッチを押圧操作する。

【０００７】ユーザが上記メニュー／実行スイッチを押圧操作した場合、デジタルカメラでは、ユーザによって指定された画像に対応する画像データについてリードオンリー属性が設定されることにより当該画像データがプロテクトされると共に、画像モニタ４０の表示領域の右上部に、図１５（Ｄ）に示すように鍵型マークが表示される。

【０００８】次に、図１６を参照して、記録済みの全ての画像データに一括してリードオンリー属性を持たせる方法について説明する。

【０００９】ユーザは、まず、上記メニュー／実行スイッチを押圧操作する。これに応じてデジタルカメラの画像モニタ４０には、図１６（Ａ）に示すメニュー画面が表示される。

【００１０】次にユーザは、当該メニュー画面からプロテクト・メニューを、上記と同様に上記操作スイッチの操作によって選択する。これによってデジタルカメラの画像モニタ４０には、図１６（Ｂ）に示すプロテクト・メニューが表示される。そこでユーザは、当該プロテクト・メニューの「全コマ　セット」を上記操作スイッチの操作によって指定する。これに応じてデジタルカメラの画像モニタ４０には、図１６（Ｃ）に示す再確認を促す画面が表示される。そこでユーザは、記録済みの全ての画像データに一括してプロテクトをかける場合は上記メニュー／実行スイッチを押圧操作し、キャンセルする場合には上記キャンセル／戻るスイッチを押圧操作する。

【００１１】ユーザが上記メニュー／実行スイッチを押圧操作した場合、デジタルカメラでは、記録済みの全ての画像データについてリードオンリー属性が設定されることにより当該画像データがプロテクトされる。

【００１２】ところで、これらの方法によって記録メディアに記録されている画像データに対してリードオンリ

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 60 of 398

一属性を持たせることによってプロテクトをかけた場合であっても、ハードディスク装置等の外部記憶装置や、記憶装置を備えたパーソナル・コンピュータ等の情報端末装置にデジタルカメラを接続して、当該デジタルカメラの記録メディアに記録されている画像データを上記外部記憶装置や、上記情報端末装置に備えられた記憶装置にバックアップとして記憶した場合には、当該画像データを記録メディアから消去したい場合が多い。

【００１３】しかしながら、従来のデジタルカメラでは、一度設定されたリードオンリー属性を解除するのは、図１５及び図１６を参照して説明したプロテクトをかける手順と同様の煩雑な手順を踏む必要があり、著しく手間がかかるものであった。従って、記録メディアからリードオンリー属性が設定された画像データを消去することも著しく手間がかかるものであった。

【００１４】本発明は上記事実に鑑みてなされたものであり、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができるカメラシステム、デジタルカメラ、及びデジタルカメラの制御方法を提供することを目的とする。

【００１５】

【課題を解決するための手段】上記目的を達成するために、請求項１記載のカメラシステムは、撮影によって得られた画像データを記憶する記憶手段、前記記憶手段に記憶された画像データを外部に送信する送信手段、前記記憶手段からの前記画像データの消去の禁止を指示する指示情報を入力する入力手段、及び前記指示情報に応じて前記画像データの消去の禁止を設定する設定手段を備えたデジタルカメラと、前記送信手段によって送信された画像データを受信する受信手段、前記受信手段によって受信された画像データを記憶するバックアップ記憶手段、及び前記バックアップ記憶手段に記憶された画像データが前記消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御する制御手段を備えた外部装置と、を含むものである。

【００１６】請求項１に記載のカメラシステムによれば、デジタルカメラにより、撮影によって得られた画像データが記憶手段によって記憶され、当該記憶手段に記憶された画像データが送信手段によって外部に送信される。ここで、本発明のデジタルカメラでは、記憶手段からの画像データの消去の禁止を指示する指示情報が必要に応じ入力手段によって入力され、当該指示情報に応じて上記画像データの消去の禁止が設定手段によって設定される。

【００１７】なお、上記入力手段としては、キーボード、スイッチ類、タッチパネル、タブレット等のあらゆる入力装置を適用することができる。

【００１８】一方、本発明では、外部装置により、デジタルカメラの送信手段によって送信された画像データが受信手段によって受信され、受信された画像データがバックアップ記憶手段によって記憶されると共に、当該バックアップ記憶手段に記憶された画像データが上記消去の禁止が設定手段によって設定された画像データであるときに当該画像データに設定された消去の禁止が解除されるように制御手段によって制御される。

【００１９】なお、上記記憶手段及び上記バックアップ記憶手段には、ＲＡＭ（Random Access Memory）、ＥＥＰＲＯＭ（Electrically Erasable and Programmable ROM）、フラッシュＥＥＰＲＯＭ（Flash EEPROM）等の記憶素子の他、スマート・メディア（SmartMedia(R)）、コンパクト・フラッシュ（CompactFlash）、ＡＴＡ（AT Attachment）カード、フロッピィディスク、ＣＤ－Ｒ（Compact Disc-Recordable）、ＣＤ－ＲＷ（Compact Disc-ReWritable）、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が含まれる。

【００２０】すなわち、本発明では、デジタルカメラの記憶手段に記憶された画像データのバックアップが外部装置のバックアップ記憶手段によってとられた際に、当該画像データに設定された消去の禁止を解除するようにしており、これによって当該画像データを容易に消去可能とすることができるようにしている。

【００２１】このように、請求項１に記載のカメラシステムによれば、デジタルカメラにより、撮影によって得られた画像データを記憶手段によって記憶し、当該記憶手段に記憶された画像データを外部に送信し、外部装置により、デジタルカメラから送信された画像データを受信し、受信した画像データをバックアップ記憶手段に記憶すると共に、当該バックアップ記憶手段に記憶された画像データがデジタルカメラにおいて消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる。

【００２２】また、請求項２記載のカメラシステムは、請求項１記載の発明において、前記入力手段は、前記制御手段による解除の条件として解除対象とする画像データの前記バックアップ記憶手段に記憶された回数を示す回数情報を更に入力し、前記送信手段は、前記回数情報を更に外部に送信し、前記受信手段は、前記回数情報を更に受信し、前記制御手段は、前記回数情報によって示される回数だけ前記解除対象とする画像データが前記バックアップ記憶手段に記憶された場合に当該画像データに設定された消去の禁止を解除するように制御するものである。

【００２３】請求項２に記載のカメラシステムによれば、デジタルカメラにより、入力手段によって上記制御手段による解除の条件として解除対象とする画像データのバックアップ記憶手段に記憶された回数を示す回数情報が更に入力され、送信手段によって回数情報が更

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 61 of 396

に外部に送信され、外部装置により、受信手段によって上記回数情報が更に受信され、制御手段によって上記回数情報により示される回数だけ上記解除対象とする画像データがバックアップ記憶手段に記憶された場合に当該画像データに設定された消去の禁止が解除されるように制御される。

【００２４】すなわち、本発明では、外部装置においてデジタルカメラから送信された画像データが回数情報によって示される回数だけバックアップ記憶手段に記憶（バックアップ）されたときのみに当該画像データに設定された消去の禁止を解除するようにしており、これによって消去の禁止が解除された画像データのバックアップ数を複数とすることができ、当該画像データのバックアップデータが消去される危険性を低減することができるようにしている。

【００２５】このように、請求項２に記載のカメラシステムによれば、請求項１記載の発明と同様の効果を奏することができると共に、デジタルカメラにより、消去禁止の解除の条件として解除対象とする画像データのバックアップ記憶手段に記憶された回数を示す回数情報を更に入力し、外部装置により、上記回数情報によって示される回数だけ解除対象とする画像データがバックアップ記憶手段に記憶された場合に当該画像データに設定された消去の禁止を解除するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【００２６】一方、請求項３記載のカメラシステムは、請求項1 記載の発明において、前記制御手段は、前記バックアップ記憶手段に記憶された画像データを前記記憶手段から消去するように制御するものである。

【００２７】請求項３に記載のカメラシステムによれば、外部装置により、制御手段によってバックアップ記憶手段に記憶された画像データがデジタルカメラの記憶手段から消去されるように制御される。

【００２８】すなわち、本発明では、デジタルカメラの記憶手段に記憶された画像データが外部装置のバックアップ記憶手段によって記憶（バックアップ）された際に、当該画像データをデジタルカメラの記憶手段から消去するようにしており、これによってバックアップがとられた後の画像データの消去を行うための当該デジタルカメラのユーザによる手間を削減するようにしている。

【００２９】このように、請求項３に記載のカメラシステムによれば、外部装置により、バックアップ記憶手段に記憶された画像データをデジタルカメラの記憶手段から消去するように制御しているので、バックアップがとられた後の画像データの消去を行うための手間を削減することができる。

【００３０】また、請求項４記載のカメラシステムは、請求項３記載の発明において、前記入力手段は、前記制御手段による消去の条件として消去対象とする画像データの前記バックアップ記憶手段に記憶された回数を示す回数情報を更に入力し、前記送信手段は、前記回数情報を更に外部に送信し、前記受信手段は、前記回数情報を更に受信し、前記制御手段は、前記回数情報によって示される回数だけ前記消去対象とする画像データが前記バックアップ記憶手段に記憶された場合に当該画像データを前記記憶手段から消去するように制御するものである。

【００３１】請求項４に記載のカメラシステムによれば、デジタルカメラにより、入力手段によって上記制御手段による消去の条件として消去対象とする画像データのバックアップ記憶手段に記憶された回数を示す回数情報が更に入力され、送信手段によって上記回数情報が更に外部に送信され、外部装置により、受信手段によって上記回数情報が更に受信され、制御手段によって上記回数情報により示される回数だけ上記消去対象とする画像データがバックアップ記憶手段に記憶された場合に当該画像データがデジタルカメラの記憶手段から消去されるように制御される。

【００３２】すなわち、本発明では、外部装置においてデジタルカメラから送信された画像データが回数情報によって示される回数だけバックアップ記憶手段に記憶（バックアップ）されたときのみに当該画像データがデジタルカメラの記憶手段から消去されるようにしており、これによって当該記憶手段から消去される画像データのバックアップ数を複数とすることができ、当該画像データのバックアップデータが消去される危険性を低減することができるようにしている。

【００３３】このように、請求項４に記載のカメラシステムによれば、請求項３記載の発明と同様の効果を奏することができると共に、デジタルカメラにより、記憶手段からの消去の条件として消去対象とする画像データのバックアップ記憶手段に記憶された回数を示す回数情報を更に入力し、外部装置により、上記回数情報によって示される回数だけ消去対象とする画像データがバックアップ記憶手段に記憶された場合に当該画像データをデジタルカメラの記憶手段から消去するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【００３４】なお、請求項５記載のカメラシステムのように、本発明における前記指示情報を、それ以降の撮影によって得られた画像データの消去の禁止を指示するものとすることが好ましい。これによって、撮影の度に消去の禁止を設定する場合の手間を削減することができ、撮影終了後に一括して消去の禁止を設定する場合の当該設定のし忘れを防止することができる。

【００３５】更に、請求項６記載のカメラシステムは、請求項１乃至請求項５の何れか１項の発明において、前記入力手段は、前記送信手段により送信される画像データの消去を禁止するか否かを示す消去禁止情報を入力

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 12 of 398

し、前記送信手段は、前記消去禁止情報を更に外部に送信し、前記受信手段は、前記消去禁止情報を更に受信し、前記制御手段は、前記消去禁止情報が消去を禁止することを示す場合に、前記画像データの前記バックアップ記憶手段からの消去の禁止を設定するように制御するものである。

【００３６】請求項６に記載のカメラシステムによれば、デジタルカメラにより、送信手段によって送信される画像データの消去を禁止するか否かを示す消去禁止情報が入力手段によって更に入力され、当該消去禁止情報が送信手段によって更に外部に送信される。

【００３７】一方、本発明に係る外部装置では、受信手段によって上記消去禁止情報が更に受信され、消去禁止情報が消去を禁止することを示す場合に、上記画像データの上記バックアップ記憶手段からの消去の禁止が設定されるように制御手段によって制御される。

【００３８】すなわち、本発明では、デジタルカメラにおいて入力された、外部装置に送信する画像データの消去を禁止するか否かを示す消去禁止情報が、消去を禁止することを示す場合に、当該画像データのバックアップ記憶手段からの消去を禁止するようにしており、これによってバックアップデータを保護することができるようにしている。

【００３９】このように、請求項６に記載のカメラシステムによれば、請求項１乃至請求項５の何れか１項記載の発明と同様の効果を奏することができると共に、デジタルカメラにより、送信する画像データの消去を禁止するか否かを示す消去禁止情報を入力し、外部装置により、上記消去禁止情報が消去を禁止することを示す場合に、上記画像データのバックアップ記憶手段からの消去の禁止を設定するように制御しているので、バックアップデータを保護することができる。

【００４０】一方、上記目的を達成するために、請求項７記載のデジタルカメラは、撮影によって得られた画像データを記憶する記憶手段と、前記記憶手段からの前記画像データの消去の禁止を指示する指示情報を入力する入力手段と、前記指示情報に応じて前記画像データの消去の禁止を設定する設定手段と、前記記憶手段に記憶された画像データを外部記憶装置に記憶する外部記憶手段と、前記外部記憶手段によって前記外部記憶装置に記憶された画像データが前記消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御する制御手段と、を備えたものである。

【００４１】請求項７に記載のデジタルカメラによれば、撮影によって得られた画像データが記憶手段によって記憶される。

【００４２】また、本発明では、上記記憶手段からの上記画像データの消去の禁止を指示する指示情報が必要に応じ入力手段によって入力され、当該指示情報に応じて上記画像データの消去の禁止が設定手段により設定される。

【００４３】なお、上記入力手段としては、キーボード、スイッチ類、タッチパネル、タブレット等のあらゆる入力装置を適用することができる。

【００４４】一方、本発明では、記憶手段に記憶された画像データが外部記憶手段によって外部記憶装置に記憶され、外部記憶装置に記憶された画像データが設定手段によって消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止が解除されるように制御手段により制御される。

【００４５】なお、上記記憶手段には、ＲＡＭ、ＥＥＰＲＯＭ、フラッシュＥＥＰＲＯＭ等の記憶素子の他、スマート・メディア、コンパクト・フラッシュ、ＡＴＡカード、フロッピィディスク、ＣＤ－Ｒ、ＣＤ－ＲＷ、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が含まれる。また、上記外部記憶装置としては、ＲＡＭ、ＥＥＰＲＯＭ、フラッシュＥＥＰＲＯＭ等の記憶素子が記憶媒体とされた装置や、スマート・メディア、コンパクト・フラッシュ、ＡＴＡカード、フロッピィディスク、ＣＤ－Ｒ、ＣＤ－ＲＷ、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が記録媒体とされた装置等を適用することができる。

【００４６】すなわち、本発明では、記憶手段に記憶された画像データのバックアップが外部記憶装置によってとられた際に、当該画像データに設定された消去の禁止を解除するようにしており、これによって当該画像データを容易に消去可能とすることができるようにしている。

【００４７】このように、請求項７に記載のデジタルカメラによれば、撮影によって得られた画像データを記憶手段によって記憶し、当該記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該外部記憶装置に記憶された画像データが消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる。

【００４８】また、請求項８記載のデジタルカメラは、請求項７記載の発明において、前記入力手段は、前記制御手段による解除の条件として解除対象とする画像データの前記外部記憶装置に記憶された回数を示す回数情報を更に入力し、前記制御手段は、前記回数情報によって示される回数だけ前記解除対象とする画像データが前記外部記憶装置に記憶された場合に当該画像データに設定された消去の禁止を解除するように制御するものである。

【００４９】請求項８に記載のデジタルカメラによれば、上記制御手段による解除の条件として解除対象とする画像データの外部記憶装置に記憶された回

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 63 of 398

数情報が入力手段によって更に入力され、上記回数情報により示される回数だけ上記解除対象とする画像データが外部記憶装置に記憶された場合に当該画像データに設定された消去の禁止が解除されるように制御手段によって制御される。

【００５０】すなわち、本発明では、記憶手段に記憶された画像データが回数情報によって示される回数だけ外部記憶装置に記憶（バックアップ）されたときのみに当該画像データに設定された消去の禁止を解除するようにしており、これによって消去の禁止が解除された画像データのバックアップ数を複数とすることができ、当該画像データのバックアップデータが消去される危険性を低減することができるようにしている。

【００５１】このように、請求項８に記載のデジタルカメラによれば、請求項７記載の発明と同様の効果を奏することができると共に、消去禁止の解除の条件として解除対象とする画像データの外部記憶装置に記憶された回数を示す回数情報を入力し、当該回数情報によって示される回数だけ解除対象とする画像データが外部記憶装置に記憶された場合に当該画像データに設定された消去の禁止を解除するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【００５２】一方、請求項９記載のデジタルカメラは、請求項７記載の発明において、前記制御手段は、前記外部記憶装置に記憶された画像データを前記記憶手段から消去するように制御するものである。

【００５３】請求項９に記載のデジタルカメラによれば、外部記憶装置に記憶された画像データが記憶手段から消去されるように制御手段によって制御される。

【００５４】すなわち、本発明では、記憶手段に記憶された画像データが外部記憶装置によって記憶（バックアップ）された際に、当該画像データを記憶手段から消去するようにしており、これによってバックアップがとられた後の画像データの記憶手段からの消去を行うためのユーザによる手間を削減するようにしている。

【００５５】このように、請求項９に記載のデジタルカメラによれば、外部記憶装置に記憶された画像データを記憶手段から消去するように制御しているので、バックアップがとられた後の画像データの記憶手段からの消去を行うための手間を削減することができる。

【００５６】また、請求項１０記載のデジタルカメラは、請求項９記載の発明において、前記入力手段は、前記制御手段による消去の条件として消去対象とする画像データの前記外部記憶装置に記憶された回数を示す回数情報を更に入力し、前記制御手段は、前記回数情報によって示される回数だけ前記消去対象とする画像データが前記外部記憶装置に記憶された場合に当該画像データを前記記憶手段から消去するように制御するものである。

【００５７】請求項１０に記載のデジタルカメラによれば、上記制御手段による消去の条件として消去対象とする画像データの外部記憶装置に記憶された回数を示す回数情報が入力手段によって更に入力され、当該回数情報によって示される回数だけ上記消去対象とする画像データが外部記憶装置に記憶された場合に当該画像データが記憶手段から消去されるように制御手段によって制御される。

【００５８】すなわち、本発明では、記憶手段によって記憶された画像データが回数情報によって示される回数だけ外部記憶装置に記憶（バックアップ）されたときのみに当該画像データが記憶手段から消去されるようにしており、これによって当該記憶手段から消去される画像データのバックアップ数を複数とすることができ、当該画像データのバックアップデータが消去される危険性を低減することができるようにしている。

【００５９】このように、請求項１０に記載のデジタルカメラによれば、請求項９記載の発明と同様の効果を奏することができると共に、記憶手段からの消去の条件として消去対象とする画像データの外部記憶装置に記憶された回数を示す回数情報を入力し、上記回数情報によって示される回数だけ消去対象とする画像データが外部記憶装置に記憶された場合に当該画像データを記憶手段から消去するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【００６０】なお、請求項１１記載のデジタルカメラのように、本発明における前記指示情報を、それ以降の撮影によって得られた画像データの消去の禁止を指示するものとすることが好ましい。これによって、撮影の度に消去の禁止を設定する場合の手間を削減することができ、撮影終了後に一括して消去の禁止を設定する場合の当該設定のし忘れを防止することができる。

【００６１】更に、請求項１２記載のデジタルカメラは、請求項７乃至請求項１１の何れか１項の発明において、前記入力手段は、前記外部記憶装置に記憶する画像データの当該外部記憶装置からの消去を禁止するか否かを示す消去禁止情報を更に入力し、前記制御手段は、前記消去禁止情報が消去を禁止することを示す場合に、前記画像データの前記外部記憶装置からの消去の禁止を設定するように制御するものである。

【００６２】請求項１２に記載のデジタルカメラによれば、外部記憶装置に記憶される画像データの当該外部記憶装置からの消去を禁止するか否かを示す消去禁止情報が入力手段によって更に入力され、当該消去禁止情報が上記画像データの外部記憶装置からの消去を禁止することを示す場合に、当該画像データの外部記憶装置からの消去の禁止が設定されるように制御される。

【００６３】すなわち、本発明では、外部記憶装置に記憶する画像データの消去の禁止を指示する指示情報が入力されたときに、当該画像データの外部記憶装置からの消去を

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 64 of 398

禁止するようにしており、これによってバックアップデータを保護することができるようにしている。

【００６４】このように、請求項１２に記載のデジタルカメラによれば、請求項７乃至請求項１１の何れか１項記載の発明と同様の効果を奏することができると共に、外部記憶装置に記憶する画像データの消去を禁止するか否かを示す消去禁止情報を入力し、当該消去禁止情報が画像データの外部記憶装置からの消去を禁止することを示す場合に、当該画像データの外部記憶装置からの消去の禁止を設定するように制御しているので、バックアップデータを保護することができる。

【００６５】一方、上記目的を達成するために、請求項１３記載のデジタルカメラの制御方法は、撮影によって得られた画像データを記憶する記憶手段を備えたデジタルカメラの制御方法であって、前記記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該画像データが前記記憶手段からの消去の禁止が設定されたものであった場合に当該消去の禁止を解除するように制御するものである。

【００６６】なお、上記記憶手段には、ＲＡＭ、ＥＥＰＲＯＭ、フラッシュＥＥＰＲＯＭ等の記憶素子の他、スマート・メディア、コンパクト・フラッシュ、ＡＴＡカード、フロッピィディスク、ＣＤ－Ｒ、ＣＤ－ＲＷ、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が含まれる。また、上記外部記憶装置としては、ＲＡＭ、ＥＥＰＲＯＭ、フラッシュＥＥＰＲＯＭ等の記憶素子が記憶媒体とされた装置や、スマート・メディア、コンパクト・フラッシュ、ＡＴＡカード、フロッピィディスク、ＣＤ－Ｒ、ＣＤ－ＲＷ、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が記録媒体とされた装置等を適用することができる。

【００６７】すなわち、本発明では、記憶手段に記憶された画像データのバックアップが外部記憶装置によってとられた際に、当該画像データに設定された消去の禁止を解除するようにしており、これによって当該画像データを容易に消去可能とすることができるようにしている。

【００６８】このように、請求項１３に記載のデジタルカメラの制御方法によれば、撮影によって得られ、かつ記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該画像データが上記記憶手段からの消去の禁止が設定されたものであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる。

【００６９】また、請求項１４記載のデジタルカメラの制御方法は、撮影によって得られた画像データを記憶する記憶手段を備えたデジタルカメラの制御方法であって、前記記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該画像データを前記記憶手段から消去するように制御するものである。

【００７０】なお、上記記憶手段には、ＲＡＭ、ＥＥＰＲＯＭ、フラッシュＥＥＰＲＯＭ等の記憶素子の他、スマート・メディア、コンパクト・フラッシュ、ＡＴＡカード、フロッピィディスク、ＣＤ－Ｒ、ＣＤ－ＲＷ、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が含まれる。また、上記外部記憶装置としては、ＲＡＭ、ＥＥＰＲＯＭ、フラッシュＥＥＰＲＯＭ等の記憶素子が記憶媒体とされた装置や、スマート・メディア、コンパクト・フラッシュ、ＡＴＡカード、フロッピィディスク、ＣＤ－Ｒ、ＣＤ－ＲＷ、光磁気ディスク等の可搬記録媒体やハードディスク等の固定記録媒体が記録媒体とされた装置等を適用することができる。

【００７１】すなわち、本発明では、記憶手段に記憶された画像データのバックアップが外部記憶装置によってとられた際に、当該画像データを記憶手段から消去するようにしており、これによってバックアップがとられた後の画像データの記憶手段からの消去を行うためのユーザによる手間を削減するようにしている。

【００７２】このように、請求項１４に記載のデジタルカメラの制御方法によれば、外部記憶装置に記憶（バックアップ）された画像データを記憶手段から消去するように制御しているので、バックアップがとられた後の画像データの記憶手段からの消去を行うための手間を削減することができる。

【００７３】

【発明の実施の形態】以下、図面を参照して、本発明の実施の形態について詳細に説明する。

【００７４】〔第１実施形態〕本第１実施形態では、請求項１～請求項６記載の発明、すなわち本発明のカメラシステムの形態例について説明する。まず、図１を参照して、本実施の形態に係るデジタルカメラ１０の外観上の構成を説明する。

【００７５】図１（Ａ）に示すように、デジタルカメラ１０の正面には、被写体像を結像させるためのレンズ１２と、露光に際して被写体が適正な露光光量が得られない低照度の場合に発光されるストロボ３０と、撮影する被写体の構図を決めるために用いられる光学ファインダ４６と、が備えられている。

【００７６】また、デジタルカメラ１０の上面には、撮影を実行する際にユーザによって押圧操作されるシャッタスイッチ（所謂、レリーズスイッチ）４４と、電源スイッチ４８と、が備えられており、デジタルカメラ１０の側面には、外部の装置と接続されて当該装置との間の所定のインタフェース規格（本実施の形態では、ＵＳＢ（Universal Serial Bus））による通信を制御するデジタル・インタフェース（以下、「デジタルＩ／Ｆ」という。）３４と、撮影によって得られた画像データをデジタルデータとして記憶する可搬型の記録メディア（本実施の形態では、メモリカード）をデジタルカメラ１０に

Exhibit 1002
TCL V. Maxell - IPR2025-00134
Page 65 of 398

装着する際に当該記録メディアが挿入される記録メディア挿入部５０と、が備えられている。

【００７７】一方、図１（Ｂ）に示すように、デジタルカメラ１０の背面には、撮影によって得られた被写体像、各種メニュー、メッセージ等を表示する液晶ディスプレイで構成された画像モニタ４０と、画像モニタ４０の表示領域における上下左右の４方向の移動方向を示す矢印キーが設けられた操作スイッチ４２と、メニューを表示させるとき及び設定した処理を実行させるときに押圧操作されるメニュー／実行スイッチ５２と、撮影された被写体像を画像モニタ４０に表示させるときに押圧操作される表示スイッチ５４と、が備えられている。

【００７８】次に、図２を参照して、本実施の形態に係るデジタルカメラ１０の電気系の構成を説明する。

【００７９】同図に示すように、デジタルカメラ１０は、撮影時にレンズ１２を通過した被写体を示す入射光の光量を制限するためのメカニカル・シャッタ及び絞り（以下、「シャッタ・絞り」という。）１４と、上記入射光に基づき被写体を撮像して被写体像を示すアナログ画像信号を出力するＣＣＤによって構成された撮像デバイス１８と、入力された信号に対して所定のアナログ信号処理を施すアナログ信号処理部２０と、入力されたアナログ信号をデジタル信号に変換するアナログ／デジタル変換器（以下、「Ａ／Ｄ変換器」という。）２２と、入力されたデジタル信号に対して所定のデジタル信号処理を施すデジタル信号処理部２４と、主として入力されたデジタル信号によって示される情報を記憶するＳＤＲＡＭ（Synchronous Dynamic Random Access Memory）により構成されたメモリ２６と、入力されたデジタルデータを所定の圧縮形式（本実施の形態では、ＪＰＥＧ（JointPhotographic Experts Group）形式）で圧縮する一方、入力された圧縮済みのデジタルデータを圧縮形式に応じた伸張形式で伸張する圧縮伸張部２８と、レンズ１２、シャッタ・絞り１４、撮像デバイス１８、及びストロボ３０の各々を駆動するための駆動信号を生成する駆動回路３２と、を含んで構成されている。

【００８０】撮像デバイス１８の出力端はアナログ信号処理部２０の入力端に、アナログ信号処理部２０の出力端はＡ／Ｄ変換器２２の入力端に、Ａ／Ｄ変換器２２の出力端はデジタル信号処理部２４の入力端に、デジタル信号処理部２４の出力端はメモリ２６の入力端に、各々接続されており、撮像デバイス１８による撮像によって得られたアナログ画像信号は、アナログ信号処理部２０により所定のアナログ信号処理が施され、次いでＡ／Ｄ変換器２２によりデジタル信号に変換された後、デジタル信号処理部２４により所定のデジタル信号処理が施されてデジタル画像データとしてメモリ２６に一旦記憶される。

【００８１】なお、本実施の形態に係るアナログ信号処理部２０で行われる上記所定のアナログ信号処理には、相関二重サンプリング処理及びγ（ガンマ）補正処理が含まれる。ここで、相関二重サンプリング処理は、処理対象とする信号に対して、特に熱雑音の低減において効果を発揮し、Ｓ／Ｎ比（Signal to Noise Ratio）を向上できることが知られている。

【００８２】また、本実施の形態に係るデジタル信号処理部２４で行われる上記所定のデジタル信号処理には、高域信号処理及び補間処理が含まれる。ここで、高域信号処理は、処理対象とする信号から、例えば、Y_H・Y_L法により画素に対応させて垂直方向／水平方向の輝度信号が有する周波数帯域を通常よりも高域に延ばすと共に、垂直方向／水平方向の周波数範囲が重ならないように処理して信号の高品位化を図るものである。また、補間処理は、撮像デバイス１８で単板の色分解フィルタが用いられている場合に行われる処理であり、その位置に配した色フィルタの他の２つの色を生成する補間処理を行うものである。この補間処理を行う際には、得られた高域化された輝度信号を用いて３原色Ｒ（赤）、Ｇ（緑）、Ｂ（青）の補間データを算出する。これにより、撮像デバイス１８における有効画面領域の各画素に対して３原色Ｒ、Ｇ、Ｂのプレーンデータが得られる。

【００８３】駆動回路３２の各種駆動信号を出力する出力端は、レンズ１２、シャッタ・絞り１４、撮像デバイス１８、及びストロボ３０に接続されており、これら各部は、駆動回路３２から入力された駆動信号によって駆動される。なお、図２では、錯綜を回避するために、駆動回路３２からレンズ１２、シャッタ・絞り１４及びストロボ３０に対し、１本の線が分岐されて接続された状態が示されているが、実際には、駆動回路３２から各部へは各々異なる配線によって接続されており、各部は各々異なる駆動信号で駆動される。

【００８４】一方、デジタルカメラ１０は、デジタルカメラ１０全体の動作を司るＣＰＵ（中央演算処理装置）３６を更に備えている。

【００８５】アナログ信号処理部２０、Ａ／Ｄ変換器２２、デジタル信号処理部２４、メモリ２６、圧縮伸張部２８、駆動回路３２、デジタルＩ／Ｆ３４、ＣＰＵ３６、操作スイッチ４２、及びシャッタスイッチ４４は各々メインバスＭＢに接続されており、ＣＰＵ３６は、アナログ信号処理部２０、Ａ／Ｄ変換器２２、デジタル信号処理部２４及び圧縮伸張部２８の作動の制御、メモリ２６及びデジタルＩ／Ｆ３４に接続された外部の装置へのアクセス、及び操作スイッチ４２、シャッタスイッチ４４のユーザによる操作状態の検知を行うことができる。

【００８６】また、メモリ２６の出力端は、記録メディア挿入部５０に挿入されて装着されたメモリカード３８に圧縮伸張部２８を介して接続されており、メモリ２６に記憶されたデジタル画像データは圧縮伸張部２８によって所定の圧縮形式で圧縮された後に画像ファイルとし

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 66 of 398

てメモリカード３８に記憶される。また、ＣＰＵ３６は、メモリカード３８に記憶されている圧縮処理されたデジタル画像データを、圧縮伸張部２８で伸張させ、メモリ２６を介して読み取ることができる。更に、メモリ２６の他の出力端は画像モニタ４０に接続されており、ＣＰＵ３６はメモリ２６に記憶されたデジタル画像データによって示される被写体像の画像モニタ４０への表示や、メモリ２６を介して各種メニューやメッセージ等の画像モニタ４０への表示を行うことができる。

【００８７】なお、メインバスＭＢには、メニュー／実行スイッチ５２及び表示スイッチ５４も接続されており、ＣＰＵ３６は、これらのスイッチのユーザによる操作状態の検知も行うことができる。

【００８８】一方、駆動回路３２は、ＣＰＵ３６から入力された撮影条件に応じた制御信号に基づいて、レンズ１２、シャッタ・絞り１４、撮像デバイス１８、及びストロボ３０の各々に供給すべき駆動信号を生成して各部に供給する。すなわち、駆動回路３２には、図示しないクロック生成部及びタイミング信号生成部が備えられており、ＣＰＵ３６から入力された制御信号と、上記クロック生成部及びタイミング信号生成部からの各種信号と、に基づいて各部に供給する駆動信号を生成している。

【００８９】なお、本実施の形態に係るメモリカード３８には、ユーザによる各種処理の設定内容を変数値として記憶するためのテキスト・ファイル（以下、「設定ファイル」という。）が予め記憶されている。

【００９０】ここで、当該設定ファイルで記憶される変数には、後述するオートセット処理を行うか否かを示す変数（以下、「オートセット変数」という。）、後述する自動消去処理を行うか否かを示す変数（以下、「自動消去変数」という。）、後述するバックアップ回数を示す変数（以下、「バックアップ回数変数」という。）、及び後述するバックアップ保護処理を行うか否かを示す変数（以下、「バックアップ保護変数」という。）が含まれる。また、オートセット変数、自動消去変数、及びバックアップ保護変数の各変数には、対象とする処理を行う場合は‘オン’を示す値（本実施の形態では、‘１’）が、対象とする処理を行わない場合には‘オフ’を示す値（本実施の形態では、‘０’）が、各々設定され、バックアップ回数変数にはバックアップ回数を示す値が設定される。また、オートセット変数、自動消去変数、及びバックアップ保護変数の各変数には‘オフ’を示す値である‘０’が、バックアップ回数変数には‘１’が、各々デフォルトとして設定されている。

【００９１】一方、図３には、デジタルカメラ１０をパーソナル・コンピュータ８０に簡易に接続するために用いられるクレードル６０の構成が示されている。同図に示すようにクレードル６０には、当該クレードル６０を介してパーソナル・コンピュータ８０に接続する際にデジタルカメラ１０が挿入されるカメラ挿入部６２が設けられており、カメラ挿入部６２の内部には、デジタルカメラ１０に設けられたデジタルＩ／Ｆ３４の接続端子に対応する接続端子６４が設けられている。

【００９２】デジタルカメラ１０をクレードル６０に装着する際には、デジタルカメラ１０を、底面を下向きとして同図矢印Ａ方向に挿入した後、同図矢印Ｂ方向にスライドさせる。これによって、デジタルカメラ１０のデジタルＩ／Ｆ３４の接続端子が接続端子６４に接続される。そして、クレードル６０とパーソナル・コンピュータ８０との間は上記所定のインタフェース規格（本実施の形態では、ＵＳＢ）で接続するインタフェース・ケーブル（以下、「Ｉ／Ｆケーブル」という。）７０で接続されている。従って、クレードル６０に装着されたデジタルカメラ１０は、パーソナル・コンピュータ８０との間で上記所定のインタフェース規格で相互通信することができる。

【００９３】更に、クレードル６０には、装着されたデジタルカメラ１０のメモリカード３８に記憶されている画像ファイルをパーソナル・コンピュータ８０に取り込ませる際に押圧操作される自動取込ボタン６６と、装着されたデジタルカメラ１０の充電池に対してパーソナル・コンピュータ８０から供給された電力で充電が行われている際、及び装着されたデジタルカメラ１０とパーソナル・コンピュータ８０との間で通信が行われている際に点灯される充電／アクセスランプ６８Ａと、不図示の電源スイッチがオン状態となっているときに点灯される電源ランプ６８Ｂと、が備えられている。

【００９４】一方、図４には、パーソナル・コンピュータ８０における本発明に特に関係する部分の電気系の構成が示されている。同図に示すように、パーソナル・コンピュータ８０は、パーソナル・コンピュータ８０全体の動作を司るＣＰＵ８２と、外部の装置と接続されて当該装置との間の所定のインタフェース規格（本実施の形態では、ＵＳＢ）による通信を制御するデジタル・インタフェース（以下、「デジタルＩ／Ｆ」という。）８４と、各種プログラムやデータ等の情報を記憶するためのハードディスク８６と、がバスＢｕｓを介して相互に接続されて構成されている。従って、ＣＰＵ８２は、デジタルＩ／Ｆ８４を介して接続された装置との間で各種情報の授受を行うことができると共に、ハードディスク８６に対する各種情報の書き込み及びハードディスク８６に書き込まれている各種情報の読み出しを行うことができる。

【００９５】ここで、デジタルＩ／Ｆ８４には、一端部のコネクタがクレードル６０に接続されたＩ／Ｆケーブル７０の他端部のコネクタが接続されている。従って、パーソナル・コンピュータ８０のＣＰＵ８２は、クレードル６０に装着されたデジタルカメラ１０との間で各種情報の授受を行うことができる。

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 67 of 398

【００９６】なお、本実施の形態に係るハードディスク８６には、デジタルＩ／Ｆ８４に接続された装置に記憶されている画像ファイルを読み出して記憶するためのフォルダ（以下、「バックアップフォルダ」という。）が予め設けられると共に、当該バックアップフォルダに対する画像ファイル毎の記憶回数を示す変数（以下、「実バックアップ回数変数ＪＮ」という。）がテキスト形式のファイル（以下、「実バックアップ回数ファイル」という。）として記憶される。

【００９７】デジタルカメラ１０に備えられたメモリカード３８が請求項１～請求項６記載の発明の記憶手段に、デジタルＩ／Ｆ３４が請求項１～請求項６記載の発明の送信手段に、操作スイッチ４２が請求項１～請求項６記載の発明の入力手段に、ＣＰＵ３６が請求項１～請求項６記載の発明の設定手段に、各々相当する。また、パーソナル・コンピュータ８０に備えられたデジタルＩ／Ｆ８４が請求項１～請求項６記載の発明の受信手段に、ハードディスク８６が請求項１～請求項６記載の発明のバックアップ記憶手段に、ＣＰＵ８２が請求項１～請求項６記載の発明の制御手段に、各々相当する。

【００９８】次に、本実施の形態に係るカメラシステムの作用を説明する。まず、図５を参照して、デジタルカメラ１０において実行されるプロテクト設定処理について説明する。なお、図５は、ユーザによる指示入力に応じてプロテクト設定処理を実行する際にデジタルカメラ１０のＣＰＵ３６によって実行されるプロテクト設定処理プログラムの処理の流れを示すフローチャートである。

【００９９】デジタルカメラ１０のＣＰＵ３６は、電源スイッチ４８がオン状態になっているとき、ユーザによりメニュー／実行スイッチ５２が押圧操作されると画像モニタ４０に所定のメニュー画面を表示する。そこでユーザは、当該メニュー画面から鍵型マークで示されるプロテクト・メニューを操作スイッチ４２の操作によって選択する。これに応じてＣＰＵ３６は、画像モニタ４０に対して図６に示されるプロテクト・メニューを表示すると共に、上記プロテクト設定処理プログラムの実行を開始する。また、プロテクト・メニューが画像モニタ４０に表示されると、ユーザは、当該メニューから所望の処理を操作スイッチ４２の操作によって指定するか、又は不図示のキャンセルスイッチの操作によってプロテクト設定処理の強制終了（キャンセル）を指定する。

【０１００】なお、プロテクト・メニューにおける「全コマリセット」は、メモリカード３８に記憶されている画像ファイルに対して設定されている全てのリードオンリー属性を解除する処理を行うものであり、「全コマセット」は、メモリカード３８に記憶されている全ての画像ファイルに対してリードオンリー属性を設定する処理を行うものであり、「１コマセット」は、メモリカード３８に記憶されている画像データの中の選択された１コマ分の画像ファイルに対してリードオンリー属性を設定する処理を行うものであり、「オートセット」は、それ以降の撮影によって得られた全ての画像ファイルに対してリードオンリー属性を設定する処理を行うものである。

【０１０１】このように、本実施の形態に係るデジタルカメラ１０では、メモリカード３８に記憶された画像ファイルの消去の禁止を設定する方法として当該画像データに対してリードオンリー属性を設定する方法を適用しており、リードオンリー属性を設定することが本発明における「消去の禁止」に相当する。なお、リードオンリー属性は、メモリカード３８に設けられたＦＡＴ（File Allocation Table）に対して設定される。

【０１０２】プロテクト設定処理プログラム（図５参照）のステップ１００では、ユーザによるプロテクト・メニューからの所望の処理の指定、及びキャンセルスイッチを用いたキャンセルの指定の何れかの指定待ちを行い、次のステップ１０２では、ユーザによって指定された処理が「全コマリセット」であったか否かを判定し、肯定判定の場合はステップ１０４に移行して、メモリカード３８に記憶されている画像ファイルに対して設定されている全てのリードオンリー属性を解除した後、本プロテクト設定処理プログラムを終了する。

【０１０３】一方、上記ステップ１０２において否定判定された場合にはステップ１０６へ移行し、ユーザによって指定された処理が「全コマセット」であったか否かを判定し、肯定判定の場合はステップ１０８に移行して、メモリカード３８に記憶されている全ての画像ファイルに対してリードオンリー属性を設定した後、本プロテクト設定処理プログラムを終了する。

【０１０４】一方、上記ステップ１０６において否定判定された場合にはステップ１１０へ移行し、ユーザによって指定された処理が「１コマセット」であったか否かを判定し、肯定判定の場合はステップ１１２に移行して、メモリカード３８に記憶されている全ての画像ファイルを圧縮伸張部２８によって伸張しつつ読み出し、読み出した画像ファイルによって示される画像（被写体像）をサムネールとして画像モニタ４０に表示する。画像モニタ４０にサムネールが表示されると、ユーザは、当該サムネールから、プロテクトをかけたい画像を操作スイッチ４２の操作によって指定する。

【０１０５】そこで、次のステップ１１４では、ユーザによる所望の画像の指定待ちを行い、次のステップ１１６では、ユーザによって指定された画像に対応する画像ファイルに対してリードオンリー属性を設定した後、本プロテクト設定処理プログラムを終了する。

【０１０６】一方、上記ステップ１１０において否定判定された場合にはステップ１１８へ移行し、ユーザによって指定された処理が「オートセット」であったか否かを判定し、肯定判定の場合はステップ[illegible]し

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 68 of 396

て、メモリカード３８に予め記憶されている設定ファイルのオートセット変数の値を‘オン’を示す値（本実施の形態では、‘１’）とするように更新した後、本プロテクト設定処理プログラムを終了する。

【０１０７】一方、上記ステップ１１８において否定判定された場合にはステップ１２２へ移行し、ユーザによる指定が不図示のキャンセルスイッチの操作によるプロテクト設定処理のキャンセルの指定であったか否かを判定し、肯定判定の場合は本プロテクト設定処理プログラムを終了し、否定判定の場合は、ユーザによる指定内容に誤りがあったものと見なして何ら処理を行うことなく上記ステップ１００へ戻る。

【０１０８】次に、図７を参照して、デジタルカメラ１０において実行されるプロテクトオート設定処理について説明する。なお、図７は、ユーザによる指示入力に応じてプロテクトオート設定処理を実行する際にデジタルカメラ１０のＣＰＵ３６によって実行されるプロテクトオート設定処理プログラムの処理の流れを示すフローチャートである。

【０１０９】デジタルカメラ１０のＣＰＵ３６は、電源スイッチ４８がオン状態になっているとき、ユーザによりメニュー／実行スイッチ５２が押圧操作されると画像モニタ４０に所定のメニュー画面を表示する。そこでユーザは、当該メニュー画面から「ＡＵＴＯ」の文字が付された鍵型マークで示されるプロテクト・オート・メニューを操作スイッチ４２の操作によって選択する。これに応じてＣＰＵ３６は、画像モニタ４０に対して図８に示されるプロテクト・オート・メニューを表示すると共に、上記プロテクトオート設定処理プログラムの実行を開始する。また、プロテクト・オート・メニューが画像モニタ４０に表示されると、ユーザは、当該メニューから所望の処理を操作スイッチ４２の操作によって指定するか、又は不図示のキャンセルスイッチの操作によってプロテクトオート設定処理の強制終了（キャンセル）を指定する。

【０１１０】なお、プロテクト・オート・メニューにおける「自動」は、それ以降の撮影によって得られた全ての画像ファイルに対してリードオンリー属性を設定する処理を行うものであり、前述のプロテクト・メニューにおける「オートセット」と同様の処理を行うものである。

【０１１１】また、プロテクト・オート・メニューにおける「自動消去」は、外部の装置によってバックアップがとられた画像ファイルをメモリカード３８から自動的に消去する処理を行うものであり、「バックアップ回数」は、上記「自動消去」がユーザによって指定された際の、画像データの消去の条件として消去対象とする画像ファイルのバックアップされた回数を設定する処理を行うものであり、「バックアップ保護」は、外部の装置によってバックアップされた画像ファイルに対する消去の禁止を指示する処理を行うものである。

【０１１２】プロテクトオート設定処理プログラム（図７参照）のステップ２００では、ユーザによるプロテクト・オート・メニューからの所望の処理の指定、及びキャンセルスイッチを用いたキャンセルの指定の何れかの指定待ちを行い、次のステップ２０２では、ユーザによって指定された処理が「自動」であったか否かを判定し、肯定判定の場合はステップ２０４に移行して、上記設定ファイルのオートセット変数の値が‘オフ’を示す値（本実施の形態では、‘０’）となっているか否かを判定し、肯定判定の場合はステップ２０６に移行してオートセット変数の値を‘オン’を示す値（本実施の形態では、‘１’）に更新した後に本プロテクトオート設定処理プログラムを終了し、否定判定の場合にはステップ２０８に移行してオートセット変数の値を‘オフ’を示す値に更新した後に本プロテクトオート設定処理プログラムを終了する。なお、オートセット変数の値が‘オン’を示すものである場合には当該メニューの「自動」の表示に対応する位置に‘ＯＮ’が表示され、オートセット変数の値が‘オフ’を示すものである場合には当該メニューの「自動」の表示に対応する位置に‘ＯＦＦ’が表示される。

【０１１３】すなわち、上記ステップ２０４～ステップ２０８の処理では、ユーザにより「自動」が指定されたとき、その時点でのオートセット変数に対する設定を逆の設定とする（‘オフ’であった場合は‘オン’とし、‘オン’であった場合は‘オフ’とする。）ようにしている。

【０１１４】一方、上記ステップ２０２において否定判定された場合にはステップ２１０へ移行し、ユーザによって指定された処理が「自動消去」であったか否かを判定し、肯定判定の場合はステップ２１２に移行して、上記設定ファイルの自動消去変数の値が‘オフ’を示す値（本実施の形態では、‘０’）となっているか否かを判定し、肯定判定の場合はステップ２１４に移行して自動消去変数の値を‘オン’を示す値（本実施の形態では、‘１’）に更新した後に本プロテクトオート設定処理プログラムを終了し、否定判定の場合にはステップ２１６に移行して自動消去変数の値を‘オフ’を示す値に更新した後に本プロテクトオート設定処理プログラムを終了する。なお、自動消去変数の値が‘オン’を示すものである場合には当該メニューの「自動消去」の表示に対応する位置に‘ＯＮ’が表示され、自動消去変数の値が‘オフ’を示すものである場合には当該メニューの「自動消去」の表示に対応する位置に‘ＯＦＦ’が表示される。

【０１１５】すなわち、上記ステップ２１２～ステップ２１６の処理では、ユーザにより「自動消去」が指定されたとき、その時点での自動消去変数に対する設定を逆の設定とする（‘オフ’であった場合は‘オン’とし、

Exhibit 1002
TCL V. Maxell - IPR2025-00134
Page 69 of 398

‘オン’であった場合は‘オフ’とする。）ようにしている。

【０１１６】一方、上記ステップ２１０において否定判定された場合にはステップ２１８へ移行し、ユーザによって指定された処理が「バックアップ回数」であったか否かを判定し、肯定判定の場合はステップ２２０に移行して、バックアップ回数変数Ｎの値をユーザによる操作スイッチ４２の操作に応じた値に更新した後に本プロテクトオート設定処理プログラムを終了する。なお、上記バックアップ回数変数Ｎの値は、操作スイッチ４２の右矢印キーを１回押下することによって‘１’だけインクリメントされ、操作スイッチ４２の左矢印キーを１回押下することによって‘１’だけデクリメントされる。

【０１１７】一方、上記ステップ２１８において否定判定された場合にはステップ２２２へ移行し、ユーザによって指定された処理が「バックアップ保護」であったか否かを判定し、肯定判定の場合はステップ２２４に移行して、上記設定ファイルのバックアップ保護変数の値が‘オフ’を示す値（本実施の形態では、‘０’）となっているか否かを判定し、肯定判定の場合はステップ２２６に移行してバックアップ保護変数の値を‘オン’を示す値（本実施の形態では、‘１’）に更新した後に本プロテクトオート設定処理プログラムを終了し、否定判定の場合にはステップ２２８に移行してバックアップ保護変数の値を‘オフ’を示す値に更新した後に本プロテクトオート設定処理プログラムを終了する。なお、バックアップ保護変数の値が‘オン’を示すものである場合には当該メニューの「バックアップ保護」の表示に対応する位置に‘ＯＮ’が表示され、バックアップ保護変数の値が‘オフ’を示すものである場合には当該メニューの「バックアップ保護」の表示に対応する位置に‘ＯＦＦ’が表示される。

【０１１８】すなわち、上記ステップ２２４～ステップ２２８の処理では、ユーザにより「バックアップ保護」が指定されたとき、その時点でのバックアップ保護変数に対する設定を逆の設定とする（‘オフ’であった場合は‘オン’とし、‘オン’であった場合は‘オフ’とする。）ようにしている。

【０１１９】一方、上記ステップ２２２において否定判定された場合にはステップ２３０へ移行し、ユーザによる指定が不図示のキャンセルスイッチの操作によるプロテクトオート設定処理のキャンセルの指定であったか否かを判定し、肯定判定の場合は本プロテクトオート設定処理プログラムを終了し、否定判定の場合は、ユーザによる指定内容に誤りがあったものと見なして何ら処理を行うことなく上記ステップ２００へ戻る。

【０１２０】なお、デジタルカメラ１０は、撮影を行う毎に、設定ファイルのオートセット変数の値がオンを示すものであるか否かを判定し、オンを示すものであったときには、当該撮影によって得られた画像ファイルをメモリカード３８に記憶すると共に、メモリカード３８のＦＡＴの当該画像ファイルに対応する記憶領域にリードオンリー属性を設定する。

【０１２１】次に、図９を参照して、パーソナル・コンピュータ８０において実行されるバックアップ処理について説明する。なお、図９は、クレードル６０（図３も参照）にデジタルカメラ１０が装着され、かつデジタルカメラ１０の電源スイッチ４８がオン状態となっているときに、パーソナル・コンピュータ８０のＣＰＵ８２によって実行されるバックアップ処理プログラムの処理の流れを示すフローチャートであり、当該プログラムはハードディスク８６の所定領域に予め記憶されている。

【０１２２】電源スイッチ４８がオン状態とされたデジタルカメラ１０をクレードル６０に装着するか、又は、電源スイッチ４８がオフ状態とされたデジタルカメラ１０をクレードル６０に装着して電源スイッチ４８をオン状態に切り換えた後、ユーザは、クレードル６０に設けられた自動取込ボタン６６を押圧操作する。

【０１２３】そこで、同図のステップ３００では、ユーザによる自動取込ボタン６６の押圧操作待ちを行い、次のステップ３０２では、クレードル６０に装着されたデジタルカメラ１０のメモリカード３８に記憶されている全ての画像ファイル及び設定ファイルを読み込み、次のステップ３０４で、読み込んだ画像ファイルのうちの１ファイル分の画像ファイルをハードディスク８６のバックアップフォルダに記憶する。なお、ここで、バックアップフォルダに、同一ファイル名の画像ファイルが既に存在する場合は、ファイル名の拡張子を一部変更して記憶する。また、バックアップフォルダに、同一ファイル名の画像ファイルが存在しない場合には、ハードディスク８６の実バックアップ回数ファイルに、当該画像ファイルの拡張子を除くファイル名に対応する実バックアップ回数変数ＪＮの値として‘０’を記憶する。

【０１２４】次のステップ３０６では、上記ステップ３０４においてバックアップフォルダに記憶した画像ファイルに対応する実バックアップ回数変数ＪＮの値を‘１’だけインクリメントするように実バックアップ回数ファイルを更新し、次のステップ３０８では、上記ステップ３０２において読み込んだ設定ファイルにおけるバックアップ保護変数の値が‘オン’を示すもの（本実施の形態では、‘１’）であるか否かを判定し、肯定判定の場合はステップ３１０へ移行して、上記ステップ３０４においてバックアップフォルダに記憶した画像ファイルのリードオンリー属性を付加した後にステップ３１２へ移行する。なお、ここで、リードオンリー属性の付加は、ハードディスク８６に設けられたＦＡＴに対して行われる。

【０１２５】一方、上記ステップ３０８において否定判定された場合には、上記ステップ３１０の処理を実行することなくステップ３１２へ移行する。

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 70 of 398

【０１２６】ステップ３１２では、上記ステップ３０２において読み込んだ設定ファイルにおける自動消去変数の値が‘オン’を示すもの（本実施の形態では、‘１’）であるか否かを判定し、肯定判定の場合はステップ３１４へ移行して、上記ステップ３０４においてバックアップフォルダに記憶した画像ファイルに対応する実バックアップ回数変数ＪＮの値が、上記設定ファイルにおけるバックアップ回数変数Ｎの値以上となっているか否かを判定し、肯定判定の場合はステップ３１６へ移行して当該画像ファイルをデジタルカメラ１０のメモリカード３８から消去した後にステップ３１８へ移行する。

【０１２７】一方、上記ステップ３１２において否定判定されたとき、及びステップ３１４において否定判定されたときには上記ステップ３１６の処理を実行することなくステップ３１８に移行する。

【０１２８】ステップ３１８では、上記ステップ３０２においてデジタルカメラ１０のメモリカード３８から読み込んだ全ての画像ファイルについて上記ステップ３０４～ステップ３１６の処理が終了したか否かを判定し、否定判定の場合は上記ステップ３０４へ戻り、肯定判定となった時点で本バックアップ処理プログラムを終了する。なお、上記ステップ３０４～ステップ３１８の処理を繰り返して行う際には、それまでに処理対象としなかった画像ファイルを処理対象として行う。

【０１２９】以上詳細に説明したように、本実施の形態に係るカメラシステムでは、デジタルカメラ１０により、撮影によって得られた画像データをメモリカード３８によって記憶し、当該メモリカード３８に記憶された画像データを外部に送信し、パーソナル・コンピュータ８０により、デジタルカメラ１０から送信された画像データを受信し、受信した画像データをハードディスク８６に記憶（バックアップ）すると共に、当該ハードディスク８６に記憶された画像データをメモリカード３８から消去するように制御しているので、バックアップがとられた後の画像データのメモリカード３８からの消去を行うための手間を削減することができる。

【０１３０】また、本実施の形態に係るカメラシステムでは、デジタルカメラ１０により、メモリカード３８からの消去の条件として消去対象とする画像データのハードディスク８６に記憶された回数を示す回数情報（本実施の形態では、バックアップ回数変数Ｎの値）を入力し、パーソナル・コンピュータ８０により、上記回数情報によって示される回数だけ消去対象とする画像データがハードディスク８６に記憶された場合に当該画像データをデジタルカメラ１０のメモリカード３８から消去するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【０１３１】また、本実施の形態に係るカメラシステムでは、本発明の指示情報として、それ以降の撮影によって得られた画像データの消去の禁止（本実施の形態では、リードオンリー属性の設定）を指示するもの（本実施の形態では、オートセット変数の値）を適用しているので、撮影の度に消去の禁止を設定する場合の手間を削減することができ、撮影終了後に一括して消去の禁止を設定する場合の当該設定のし忘れを防止することができる。

【０１３２】更に、本実施の形態に係るカメラシステムでは、デジタルカメラ１０により、送信する画像データの消去を禁止するか否かを示す消去禁止情報（本実施の形態では、バックアップ保護変数の値）を入力し、パーソナル・コンピュータ８０により、上記消去禁止情報が消去を禁止することを示す場合に、上記画像データのハードディスク８６からの消去の禁止を設定するように制御しているので、バックアップデータを保護することができる。

【０１３３】〔第２実施形態〕上記第１実施形態では、バックアップ回数変数に設定された回数だけパーソナル・コンピュータ８０によってバックアップがとられた画像ファイルをデジタルカメラ１０のメモリカード３８から消去する場合の形態例について説明したが、本第２実施形態では、バックアップ回数変数に設定された回数だけパーソナル・コンピュータ８０によってバックアップがとられた画像ファイルが、メモリカード３８においてリードオンリー属性が設定されたものであるときに当該リードオンリー属性を解除する場合の形態例について説明する。

【０１３４】なお、この場合のカメラシステムの構成は、上記第１実施形態に示したカメラシステム（図１～図４参照）と同様であるので、ここでの説明は省略する。但し、本第２実施形態に係る設定ファイルは、自動消去変数に代えて、後述する自動解除処理を行うか否かを示す変数（以下、「自動解除変数」という。）が含まれる点が異なっている。ここで、自動解除変数には、自動解除処理を行う場合は‘オン’を示す値（本実施の形態では、‘１’）が、自動解除処理を行わない場合には‘オフ’を示す値（本実施の形態では、‘０’）が設定される。

【０１３５】次に、本第２実施形態に係るカメラシステムの作用を説明する。なお、本第２実施形態に係るカメラシステムでは、上記第１実施形態と同様のプロテクト設定処理が実行されるが、当該処理のここでの説明は省略する。

【０１３６】次に、図１０を参照して、本第２実施形態に係るデジタルカメラ１０において実行されるプロテクトオート設定処理について説明する。なお、図１０は、ユーザによる指示入力に応じてプロテクトオート設定処理を実行する際にデジタルカメラ１０のＣＰＵ５０によって実行されるプロテクトオート設定処理プログラムの

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 71 of 398

処理の流れを示すフローチャートである。また、同図における図７と同様の処理を行うステップには、図７と同一のステップ番号を付して、その説明を省略する。

【０１３７】本第２実施形態に係るデジタルカメラ１０のＣＰＵ３６は、電源スイッチ４８がオン状態になっているとき、ユーザによりメニュー／実行スイッチ５２が押圧操作されると画像モニタ４０に所定のメニュー画面を表示する。そこでユーザは、当該メニュー画面から「ＡＵＴＯ」の文字が付された鍵型マークで示されるプロテクト・オート・メニューを操作スイッチ４２の操作によって選択する。これに応じてＣＰＵ３６は、画像モニタ４０に対して図１１に示されるプロテクト・オート・メニューを表示すると共に、本第２実施形態に係るプロテクトオート設定処理プログラムの実行を開始する。また、プロテクト・オート・メニューが画像モニタ４０に表示されると、ユーザは、当該メニューから所望の処理を操作スイッチ４２の操作によって指定する。

【０１３８】なお、プロテクト・オート・メニューにおける「自動解除」は、外部の装置によってバックアップがとられた画像ファイルについてリードオンリー属性が設定されている場合に当該リードオンリー属性を自動的に解除する処理を行うものであり、「バックアップ回数」は、上記「自動解除」がユーザによって指定された際の、リードオンリー属性の解除の条件として解除対象とする画像ファイルのバックアップされた回数を設定する処理を行うものである。なお、当該メニューにおける「自動」及び「バックアップ保護」は、上記第１実施形態と同様の処理を行うものである。

【０１３９】プロテクトオート設定処理プログラム（図１０参照）のステップ２１０’では、ユーザによって指定された処理が「自動解除」であったか否かを判定し、肯定判定の場合はステップ２１２’に移行して、上記設定ファイルの自動解除変数の値が‘オフ’を示す値（本実施の形態では、‘０’）となっているか否かを判定し、肯定判定の場合はステップ２１４’に移行して自動解除変数の値を‘オン’を示す値（本実施の形態では、‘１’）に更新した後に本プロテクトオート設定処理プログラムを終了し、否定判定の場合にはステップ２１６’に移行して自動解除変数の値を‘オフ’を示す値に更新した後に本プロテクトオート設定処理プログラムを終了する。なお、自動解除変数の値が‘オン’を示すものである場合には当該メニューの「自動解除」の表示に対応する位置に‘ＯＮ’が表示され、自動解除変数の値が‘オフ’を示すものである場合には当該メニューの「自動解除」の表示に対応する位置に‘ＯＦＦ’が表示される。

【０１４０】すなわち、上記ステップ２１２’～ステップ２１６’の処理では、ユーザにより「自動解除」が指定されたとき、その時点での自動解除変数に対する設定を逆の設定とする（‘オフ’であった場合は‘オン’とし、‘オン’であった場合は‘オフ’とする。）ようにしている。

【０１４１】一方、上記ステップ２１０’において否定判定された場合にはステップ２１８へ移行する。

【０１４２】次に、図１２を参照して、本第２実施形態に係るパーソナル・コンピュータ８０において実行されるバックアップ処理について説明する。なお、図１２は、クレードル６０（図３も参照）にデジタルカメラ１０が装着され、かつデジタルカメラ１０の電源スイッチ４８がオン状態となっているときに、パーソナル・コンピュータ８０のＣＰＵ８２によって実行されるバックアップ処理プログラムの処理の流れを示すフローチャートであり、当該プログラムはハードディスク８６の所定領域に予め記憶されている。また、同図における図９と同様の処理を行うステップには、図９と同一のステップ番号を付して、その説明を省略する。

【０１４３】同図のステップ３１２’では、上記ステップ３０２において読み込んだ設定ファイルにおける自動解除変数の値が‘オン’を示すもの（本実施の形態では、‘１’）であるか否かを判定し、肯定判定の場合はステップ３１４へ移行し、否定判定の場合にはステップ３１８へ移行する。

【０１４４】一方、ステップ３１６’では、上記ステップ３０４においてバックアップフォルダに記憶した画像ファイルが、デジタルカメラ１０のメモリカード３８においてリードオンリー属性が設定されたものであった場合に当該リードオンリー属性を解除し、その後にステップ３１８へ移行する。

【０１４５】以上詳細に説明したように、本実施の形態に係るカメラシステムでは、デジタルカメラ１０により、撮影によって得られた画像データをメモリカード３８によって記憶し、当該メモリカード３８に記憶された画像データを外部に送信し、パーソナル・コンピュータ８０により、デジタルカメラ１０から送信された画像データを受信し、受信した画像データをハードディスク８６に記憶（バックアップ）すると共に、当該ハードディスク８６に記憶された画像データがデジタルカメラ１０においてリードオンリー属性が設定された画像データであるときに当該画像データに設定されたリードオンリー属性を解除するように制御しているので、リードオンリー属性が設定された画像データをバックアップがとられたときに容易に消去可能とすることができる。

【０１４６】また、本実施の形態に係るカメラシステムでは、デジタルカメラ１０により、リードオンリー属性の解除の条件として解除対象とする画像データのハードディスク８６に記憶された回数を示す回数情報（本実施の形態では、バックアップ回数変数Ｎの値）を入力し、パーソナル・コンピュータ８０により、上記回数情報によって示される回数だけ消去対象とする画像データがハードディスク８６に記憶された場合に当該画像データの

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 12 of 398

リードオンリー属性を解除するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【０１４７】また、本実施の形態に係るカメラシステムでは、本発明の指示情報として、それ以降の撮影によって得られた画像データの消去の禁止（本実施の形態では、リードオンリー属性の設定）を指示するもの（本実施の形態では、オートセット変数の値）を適用しているので、撮影の度に消去の禁止を設定する場合の手間を削減することができ、撮影終了後に一括して消去の禁止を設定する場合の当該設定のし忘れを防止することができる。

【０１４８】更に、本実施の形態に係るカメラシステムでは、デジタルカメラ１０により、送信する画像データの消去を禁止するか否かを示す消去禁止情報（本実施の形態では、バックアップ保護変数の値）を入力し、パーソナル・コンピュータ８０により、上記消去禁止情報が消去を禁止することを示す場合に、上記画像データのハードディスク８６からの消去の禁止を設定するように制御しているので、バックアップデータを保護することができる。

【０１４９】〔第３実施形態〕本第３実施形態では、請求項７～請求項１２記載の発明、すなわち本発明のデジタルカメラの形態例について説明する。なお、本第３実施形態に係るデジタルカメラ１０の構成は、上記第１実施形態に係るデジタルカメラ１０（図１、図２参照）と同様であるので、ここでの説明は省略する。

【０１５０】図１３には、本第３実施形態に係るデジタルカメラ１０と、外部記憶装置としてのハードディスク９０との接続状態が示されている。同図に示すように、本第３実施形態に係るデジタルカメラ１０とハードディスク９０とは、デジタルカメラ１０のデジタルＩ／Ｆ３４とハードディスク９０の不図示のデジタル・インタフェースとがＩ／Ｆケーブル９２を介して接続されることによって接続される。

【０１５１】ハードディスク９０には、デジタルカメラ１０のメモリカード３８に記憶されている画像ファイルをバックアップ記憶するためのバックアップフォルダが予め設けられると共に、当該バックアップフォルダに対する画像ファイル毎の記憶回数を示す変数（以下、「実バックアップ回数変数ＪＮ」という。）がテキスト形式のファイル（以下、「実バックアップ回数ファイル」という。）として記憶される。

【０１５２】メモリカード３８が請求項７～請求項１２記載の発明の記憶手段に、操作スイッチ４２が請求項７～請求項１２記載の発明の入力手段に、ＣＰＵ３６が請求項７～請求項１２記載の発明の設定手段及び制御手段に、ハードディスク９０が請求項７～請求項１２記載の発明の外部記憶装置に、各々相当する。

【０１５３】次に、本第３実施形態に係るデジタルカメラ１０の作用を説明する。なお、本第３実施形態に係るデジタルカメラ１０では、上記第１実施形態と同様に、プロテクト設定処理（図５参照）及びプロテクトオート設定処理（図７参照）が行われるが、これらの処理のここでの説明は省略する。

【０１５４】次に、図１４を参照して、本第３実施形態に係るデジタルカメラ１０において実行されるバックアップ処理について説明する。なお、図１４は、デジタルカメラ１０に備えられた不図示のバックアップボタンがユーザによって押圧操作されたときに、デジタルカメラ１０のＣＰＵ３６によって割り込み処理として実行されるバックアップ処理プログラムの処理の流れを示すフローチャートである。また、本バックアップ処理プログラムは、上記第１実施形態においてパーソナル・コンピュータ８０により実行されるバックアップ処理プログラム（図９も参照）と略同様の処理を行うものであり、図１４の図９と同様の処理を行うステップについては図９と同一のステップ番号を付して、その説明を省略する。

【０１５５】図１４のステップ３０４’では、上記ステップ３０２においてメモリカード３８から読み込んだ画像ファイルのうちの１ファイル分の画像ファイルをハードディスク９０のバックアップフォルダに記憶する。なお、ここで、バックアップフォルダに、同一ファイル名の画像ファイルが既に存在する場合は、ファイル名の拡張子を一部変更して記憶する。また、バックアップフォルダに、同一ファイル名の画像ファイルが存在しない場合には、ハードディスク９０の実バックアップ回数ファイルに、当該画像ファイルの拡張子を除くファイル名に対応する実バックアップ回数変数ＪＮの値として‘０’を記憶する。

【０１５６】また、ステップ３１０’では、上記ステップ３０４’においてバックアップフォルダに記憶した画像ファイルのリードオンリー属性を付加した後にステップ３１２へ移行する。なお、ここで、リードオンリー属性の付加は、ハードディスク９０に設けられたＦＡＴに対して行われる。

【０１５７】以上詳細に説明したように、本実施の形態に係るデジタルカメラでは、撮影によって得られた画像データをメモリカード３８によって記憶し、当該メモリカード３８に記憶された画像データをハードディスク９０に記憶（バックアップ）すると共に、当該ハードディスク９０に記憶された画像データをメモリカード３８から消去するように制御しているので、バックアップがとられた後の画像データのメモリカード３８からの消去を行うための手間を削減することができる。

【０１５８】また、本実施の形態に係るデジタルカメラでは、メモリカード３８からの消去の条件として消去対象とする画像データのハードディスク９０に記憶された回数を示す回数情報（本実施の形態では、バックアップ回数変数が示す値）を入力し、上記回数情報が示

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 78 of 398

される回数だけ消去対象とする画像データがハードディスク９０に記憶された場合に当該画像データをメモリカード３８から消去するように制御しているので、当該画像データのバックアップデータが消去される危険性を低減することができる。

【０１５９】また、本実施の形態に係るデジタルカメラでは、本発明の指示情報として、それ以降の撮影によって得られた画像データの消去の禁止（本実施の形態では、リードオンリー属性の設定）を指示するもの（本実施の形態では、オートセット変数の値）を適用しているので、撮影の度に消去の禁止を設定する場合の手間を削減することができ、撮影終了後に一括して消去の禁止を設定する場合の当該設定のし忘れを防止することができる。

【０１６０】更に、本実施の形態に係るデジタルカメラでは、ハードディスク９０に記憶する画像データの消去を禁止するか否かを示す消去禁止情報（本実施の形態では、バックアップ保護変数の値）を入力し、当該消去禁止情報が画像データのハードディスク９０からの消去を禁止することを示す場合に、当該画像データのハードディスク９０からの消去の禁止を設定するように制御しているので、バックアップデータを保護することができる一方、本実施の形態に係るデジタルカメラの制御方法では、ハードディスク９０に記憶された画像データをメモリカード３８から消去するように制御しているので、バックアップがとられた後の画像データのメモリカード３８からの消去を行うための手間を削減することができる。

【０１６１】なお、本実施の形態では、バックアップ回数変数に設定された回数だけハードディスク９０によってバックアップがとられた画像ファイルをデジタルカメラ１０のメモリカード３８から消去する場合の形態例について説明したが、本発明はこれに限定されるものではなく、バックアップ回数変数に設定された回数だけハードディスク９０によってバックアップがとられた画像ファイルが、メモリカード３８においてリードオンリー属性が設定されたものであるときに当該リードオンリー属性を解除する形態とすることもできる。なお、この場合の処理は、上記第２実施形態で示した処理と略同様なので、ここでの説明は省略する。

【０１６２】この場合のデジタルカメラでは、撮影によって得られた画像データをメモリカード３８によって記憶し、当該メモリカード３８に記憶された画像データをハードディスク９０に記憶すると共に、当該ハードディスク９０に記憶された画像データが消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる。また、この場合のデジタルカメラの制御方法では、撮影によって得られ、かつメモリカード３８に記憶された画像データをハードディスク９０に記憶すると共に、当該画像データがメモリカード３８からの消去の禁止が設定されたものであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる。

【０１６３】また、上記第１、第２実施形態では、本発明の送信手段と受信手段との間のインタフェース規格としてＵＳＢを適用した場合について説明したが、本発明はこれに限定されるものではなく、例えば、ＲＳ－２３２Ｃ等の、あらゆるインタフェース規格を適用できることは言うまでもない。この場合も、各実施形態と同様の効果を奏することができる。

【０１６４】また、上記各実施形態では、ユーザによる各種処理の設定内容を設定ファイルによって記憶しておく場合について説明したが、本発明はこれに限定されるものではなく、例えば、処理対象とする画像ファイルのタグに記憶しておく形態とすることもできる。この場合も、各実施形態と同様の効果を奏することができる。

【０１６５】また、上記各実施形態では、本発明の記憶手段としてメモリカード３８を適用した場合について説明したが、本発明はこれに限定されるものではなく、本発明の記憶手段としてメモリ２６を適用する形態とすることもできる。この場合も、上記各実施形態と同様の効果を奏することができる。

【０１６６】更に、上記各実施形態において説明した各種処理の流れ（図５、図７、図９、図１０、図１２、及び図１４参照）は一例であり、本発明の主旨を逸脱しない範囲内において適宜変更可能であることは言うまでもない。

【０１６７】

【発明の効果】本発明に係るカメラシステムによれば、デジタルカメラにより、撮影によって得られた画像データを記憶手段によって記憶し、当該記憶手段に記憶された画像データを外部に送信し、外部装置により、デジタルカメラから送信された画像データを受信し、受信した画像データをバックアップ記憶手段に記憶すると共に、当該バックアップ記憶手段に記憶された画像データがデジタルカメラにおいて消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる、という効果が得られる。

【０１６８】また、本発明に係るデジタルカメラによれば、撮影によって得られた画像データを記憶手段によって記憶し、当該記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該外部記憶装置に記憶された画像データが消去の禁止が設定された画像データであるときに当該画像データに設定された消去の禁止を解

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 14 of 398

除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる、という効果が得られる。

【０１６９】また、請求項１３に記載のデジタルカメラの制御方法によれば、撮影によって得られ、かつ記憶手段に記憶された画像データを外部記憶装置に記憶すると共に、当該画像データが上記記憶手段からの消去の禁止が設定されたものであるときに当該画像データに設定された消去の禁止を解除するように制御しているので、消去禁止とされた画像データをバックアップがとられたときに容易に消去可能とすることができる、という効果が得られる。

【０１７０】更に、請求項１４に記載のデジタルカメラの制御方法によれば、外部記憶装置に記憶（バックアップ）された画像データを記憶手段から消去するように制御しているので、バックアップがとられた後の画像データの記憶手段からの消去を行うための手間を削減することができる、という効果が得られる。

【図面の簡単な説明】

【図１】実施の形態に係るデジタルカメラ１０の外観上の構成を示す正面図及び背面図である。

【図２】実施の形態に係るデジタルカメラ１０の電気系の構成を示すブロック図である。

【図３】実施の形態に係るデジタルカメラ１０をパーソナル・コンピュータ８０に接続するために用いられるクレードル６０の構成を示す斜視図である。

【図４】実施の形態に係るパーソナル・コンピュータ８０における本発明に特に関係する部分の電気系の構成を示すブロック図である。

【図５】第１実施形態におけるプロテクト設定処理プログラムの処理の流れを示すフローチャートである。

【図６】実施の形態に係るプロテクト・メニューの表示例を示す概略図である。

【図７】第１実施形態におけるプロテクトオート設定処理プログラムの処理の流れを示すフローチャートである。

【図８】実施の形態に係るプロテクト・オート・メニューの表示例を示す概略図である。

【図９】第１実施形態におけるバックアップ処理プログラムの処理の流れを示すフローチャートである。

【図１０】第２実施形態におけるプロテクトオート設定処理プログラムの処理の流れを示すフローチャートである。

【図１１】第２実施形態に係るプロテクト・オート・メニューの表示例を示す概略図である。

【図１２】第２実施形態におけるバックアップ処理プログラムの処理の流れを示すフローチャートである。

【図１３】第３実施形態に係るデジタルカメラ１０とハードディスク９０との接続状態を示す概略図である。

【図１４】第３実施形態におけるバックアップ処理プログラムの処理の流れを示すフローチャートである。

【図１５】従来技術の説明に供する概略図である。

【図１６】従来技術の説明に供する概略図である。

【符号の説明】

１０　　デジタルカメラ

３４　　デジタルＩ／Ｆ（送信手段）

３６　　ＣＰＵ（設定手段、請求項７～請求項１２記載の発明の制御手段）

３８　　メモリカード（記憶手段）

４２　　操作スイッチ（入力手段）

８０　　パーソナル・コンピュータ（外部装置）

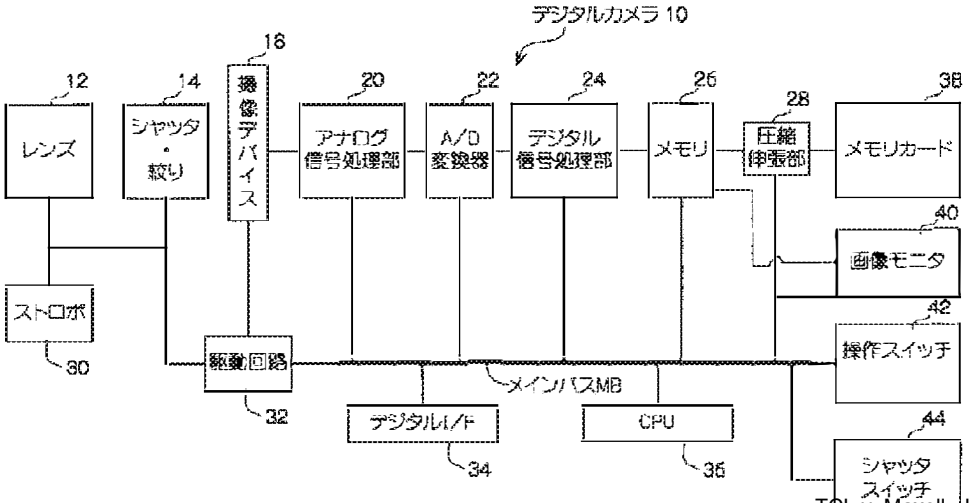
８２　　ＣＰＵ（請求項１～請求項６記載の発明の制御手段）

８４　　デジタルＩ／Ｆ（受信手段）

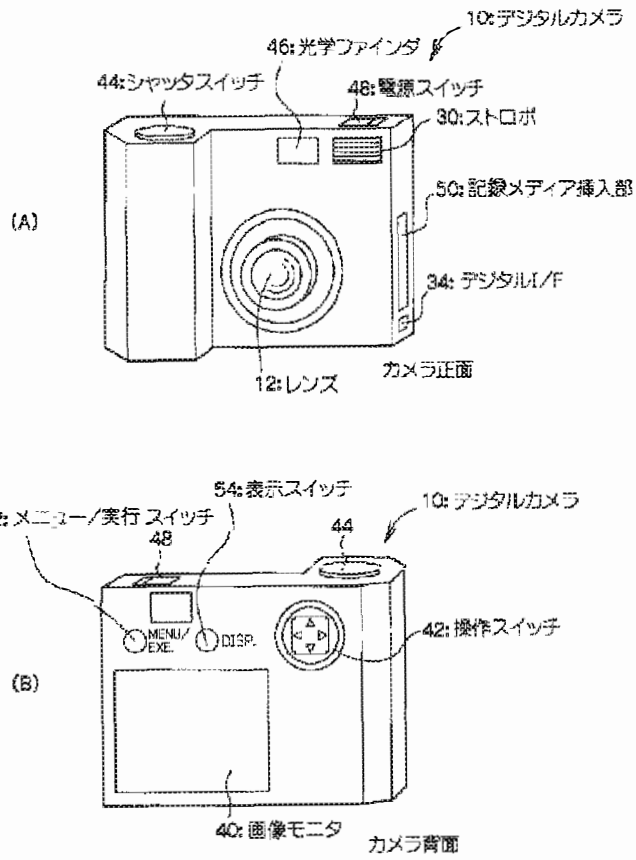
８６　　ハードディスク（バックアップ記憶手段）

９０　　ハードディスク（外部記憶装置）

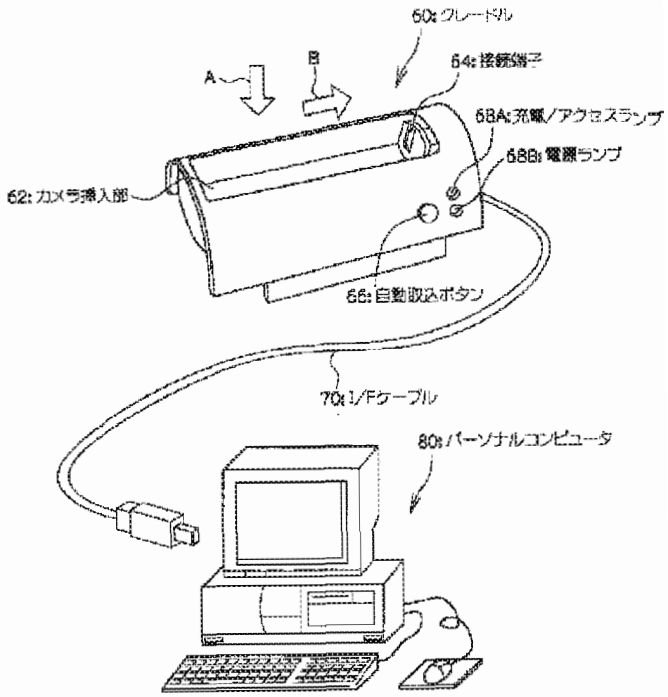
【図２】



【図１】



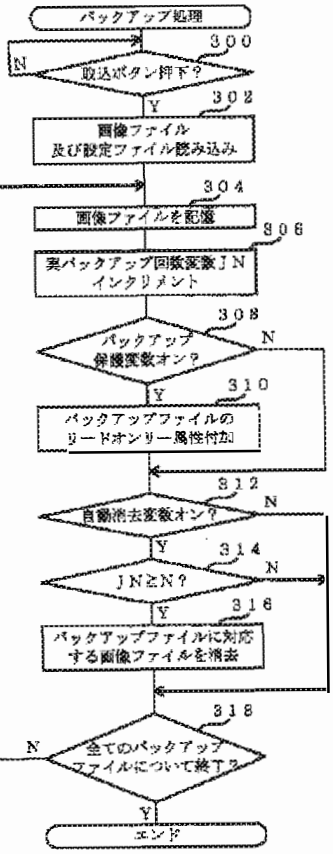
【図３】

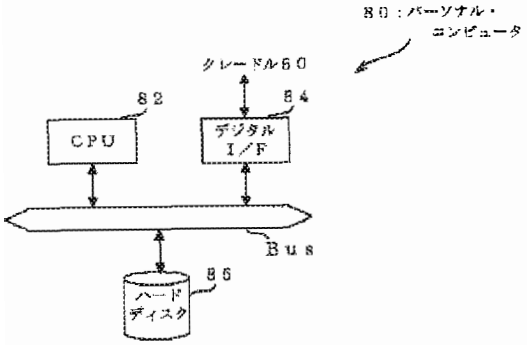


【図９】

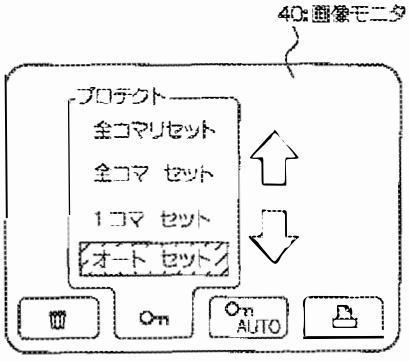
【図４】

【図６】

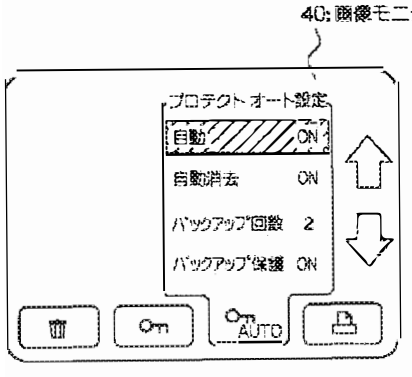




【図８】



【図１１】



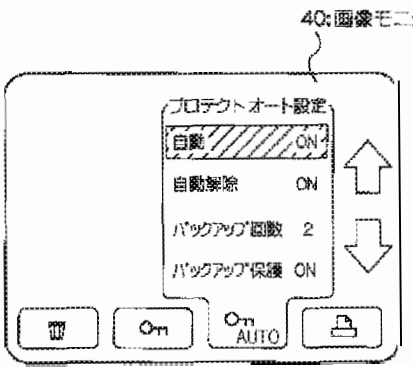
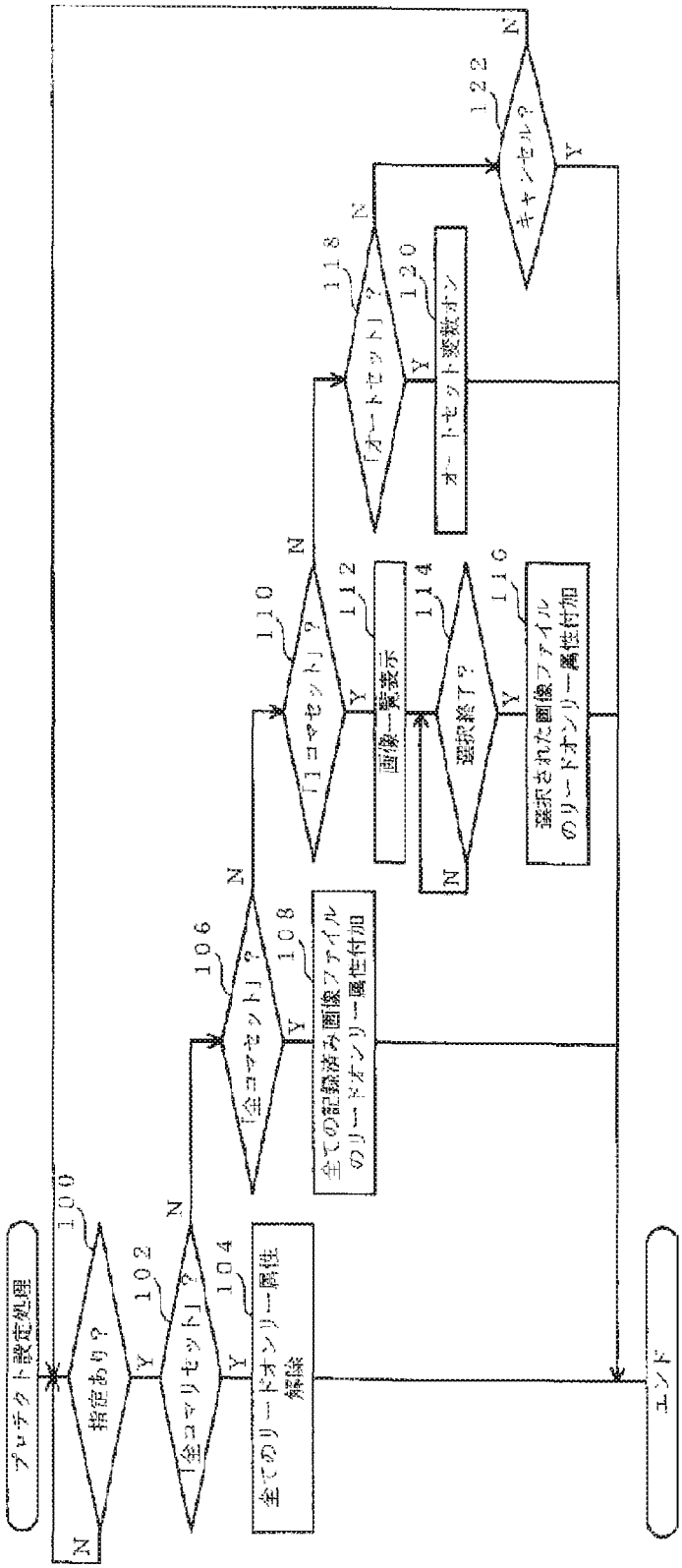
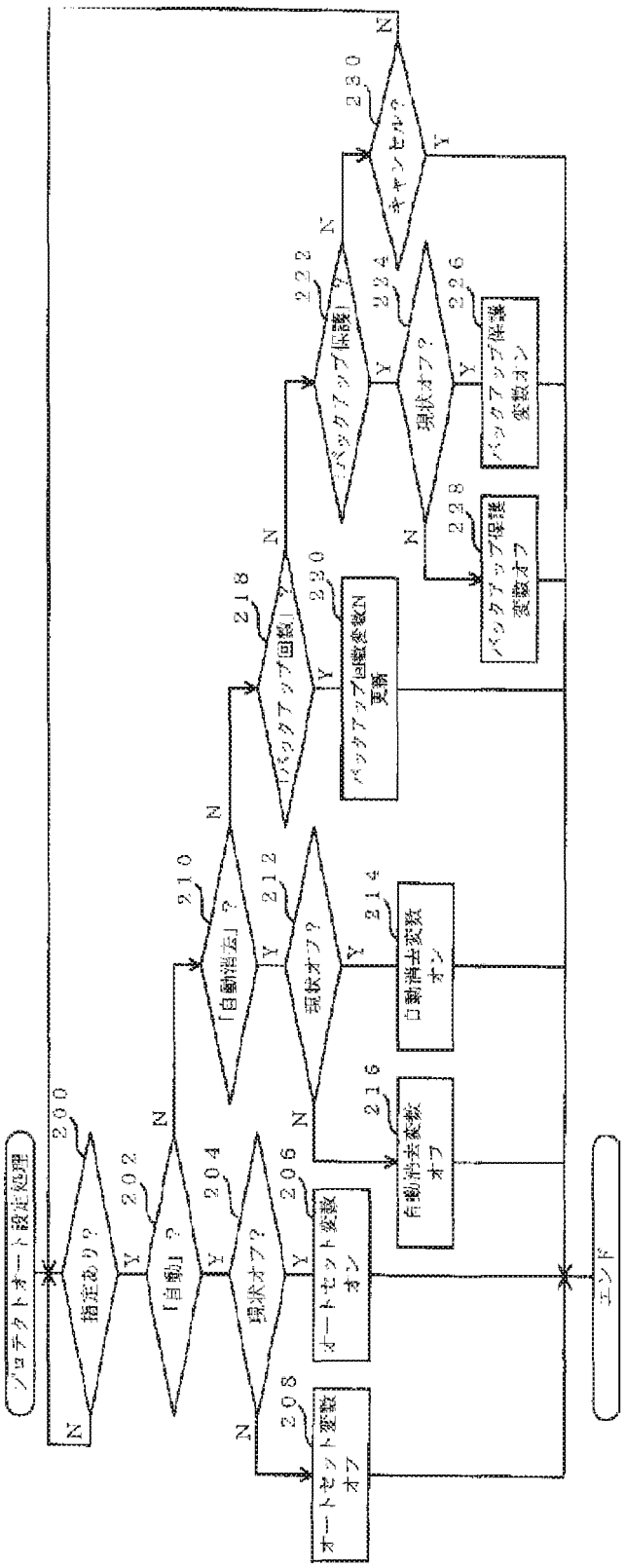


Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 76 of 398

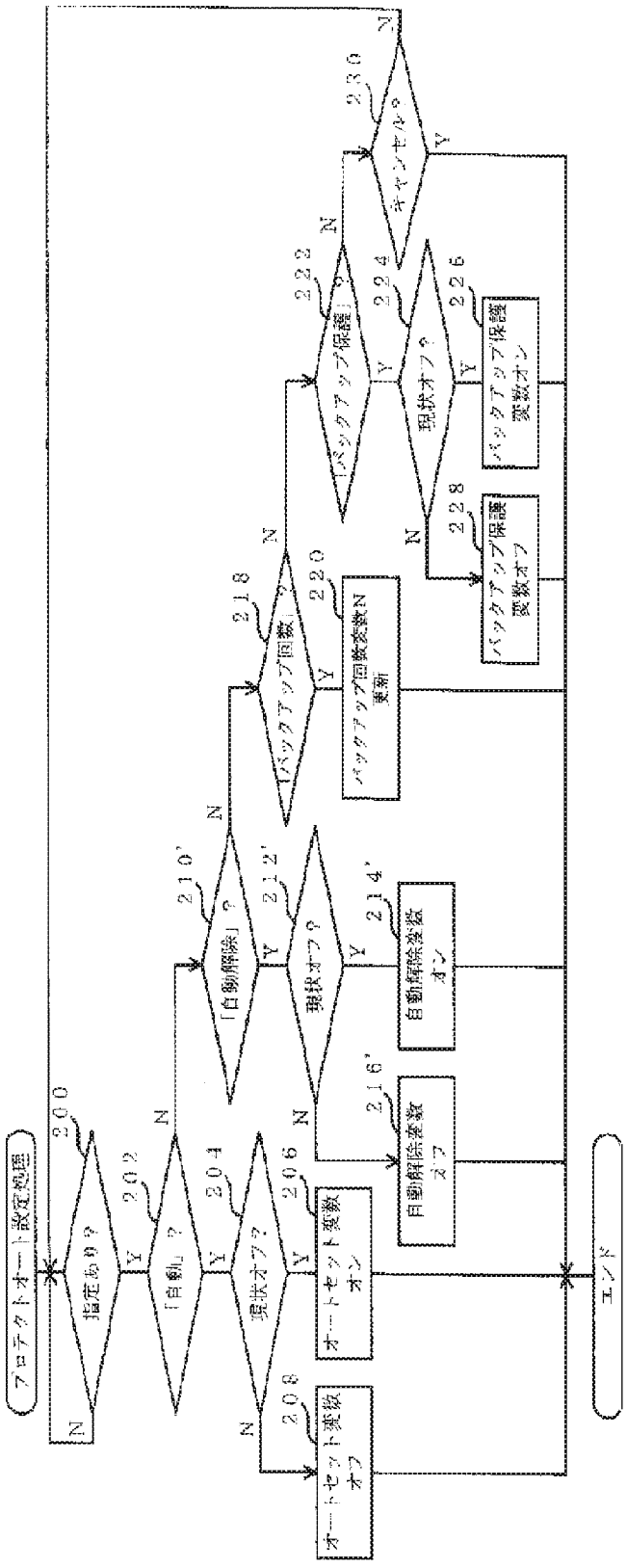
【図５】


プレセクト設定処理
100
指定あり？
N
Y
102
「全コマリセット」？
N
Y
104
全てのリードオンリー属性解除
106
「全コマセット」？
N
Y
108
全ての記録済み画像ファイルのリードオンリー属性付加
110
「1コマセット」？
N
Y
112
画像一覧表示
114
選択終了？
N
Y
116
選択された画像ファイルのリードオンリー属性付加
118
「オートセット」？
N
Y
120
オートセット実行ボン
122
キャンセル？
N
Y
エンド

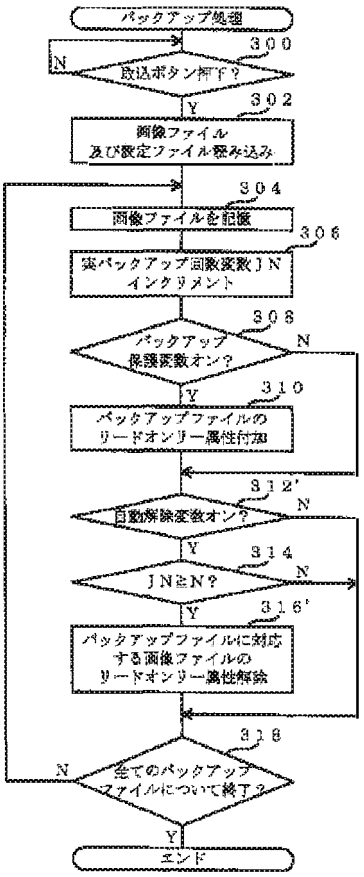
【図７】


プロテクトオート設定処理
200
指定あり？
202
「自動」？
204
現状オフ？
206
オートセット変数オン
208
オートセット変数オフ
210
「自動消去」？
212
現状オフ？
214
自動消去変数オン
216
自動消去変数オフ
218
バックアップ回数＝0？
220
バックアップ回数変数N更新
222
バックアップ保護？
224
現状オフ？
226
バックアップ保護変数オン
228
バックアップ保護変数オフ
230
キャンセル？
エンド
Y
N

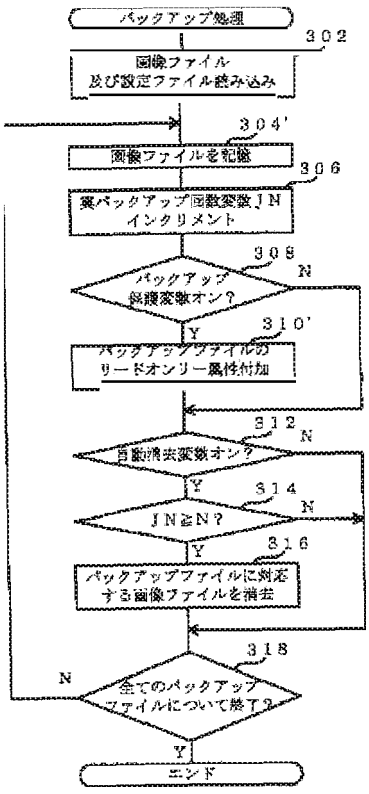
【図１０】


プロテクトオート設定処理
200
指定あり？
202
「自動」？
204
現状オフ？
206
オートセット変数 オン
208
オートセット変数 オフ
210'
「自動解除」？
212'
現状オフ？
214'
自動解除変数 オン
216'
自動解除変数 オフ
218
「バックアップ回数」？
220
バックアップ回数変数N 更新
222
「バックアップ保護」？
224
現状オフ？
226
バックアップ保護 変数オン
228
バックアップ保護 変数オフ
230
キャンセル？
エンド
Y
N

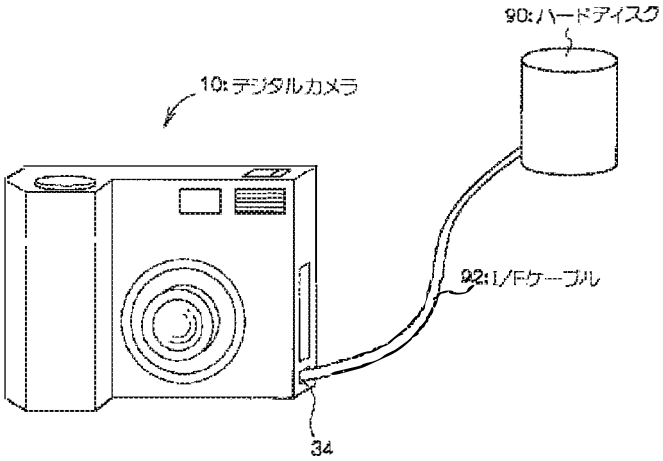
【図１２】



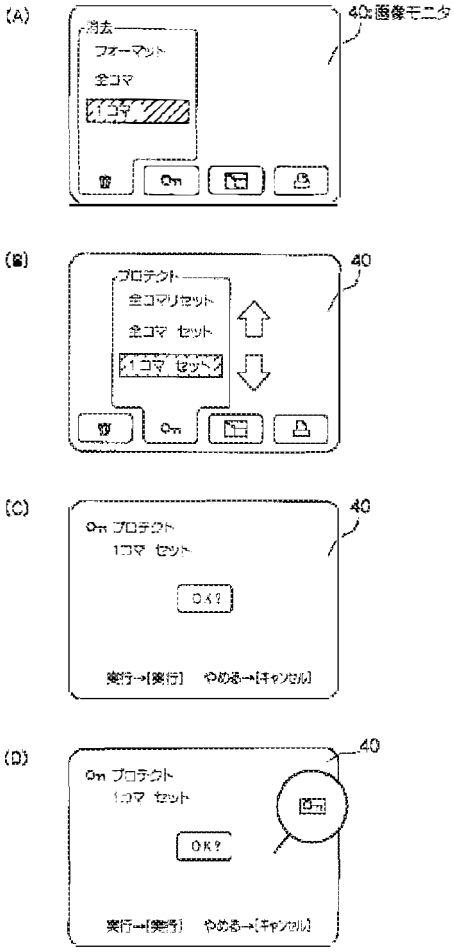
【図１４】



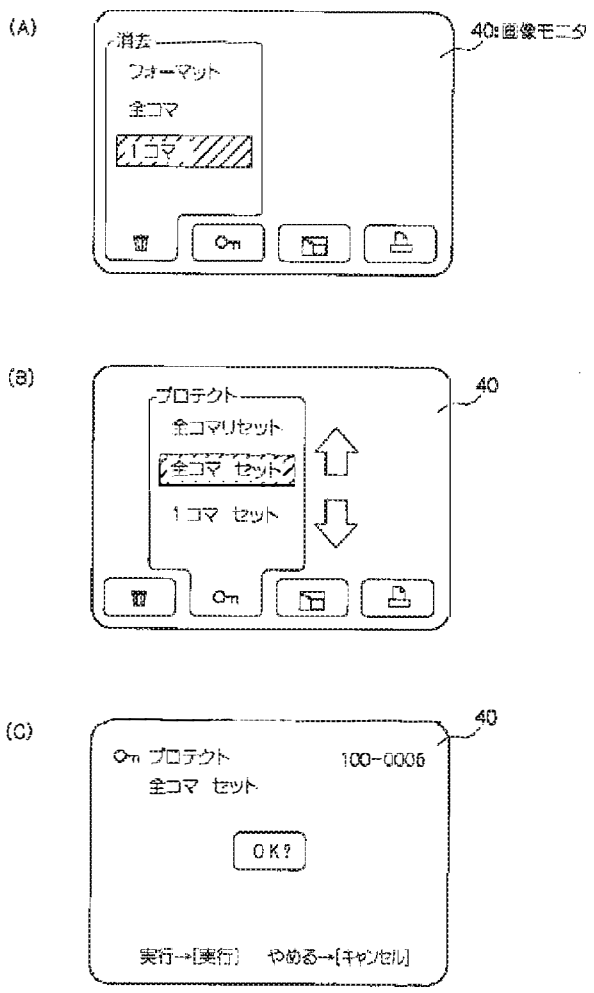
【図１３】



【図１５】



【図１６】



フロントページの続き

(51)Int.Cl.[7]	識別記号	F I		ﾃｰﾏｺｰﾄﾞ(参考)
// H04N 101:00		H04N	5/91	L

Ｆターム(参考)　5B017 AA04 BA04 BB05 CA07 CA08
CA09 CA11 CA14
5B018 GA04 HA04 MA11 MA15 MA24
NA01 NA06
5C022 AA13 AC69
5C052 GA02 GA04 GA09 GB01 GB09
GC05 GE06 GE08
5C053 FA07 FA08 FA15 FA23 FA27
GB06 HA22 JA21 JA30 KA04
KA20 KA24 KA25 LA02 LA11

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 81 of 398

(19) JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

(11) Publication number: **2006108749 A**

(43) Date of publication of application: **20.04.06**

(51) Int. Cl **H04N 5/93 20060101**
G06F 3/048 20060101
G09G 5/00 20060101
H04N 5/45 20060101

(21) Application number: **2004288461**

(22) Date of filing: **30.09.04**

(71) Applicant: **TOSHIBA CORP**

(72) Inventor: **TSURUFUSA HIDEO**
TSUCHIDA SHUNICHI
KITAMI HIROSHI

(54) **IMAGE DISPLAY APPARATUS**

COPYRIGHT: (C)2006,JPO&NCIPI

(57) Abstract:

PROBLEM TO BE SOLVED: To improve operability of an apparatus for displaying a still image and a motion image of a medium.

SOLUTION: The apparatus is configured so that it can selectively execute a mode of displaying thumbnail images on the basis of information read from a memory card, and a mode of displaying an image based on image data read from the memory card on the basis of the selection in a thumbnail image. The apparatus is configured so that an image is displayed on a screen together with information associated with the image and an operation guide for executing a function accompanying a display state. Also, the apparatus is configured so that it sets whether the information associated with the display image should be displayed. Further, the apparatus is configured so that the information associated with the image is compulsorily displayed when a display screen is switched in a state where the information associated with the image is not displayed.

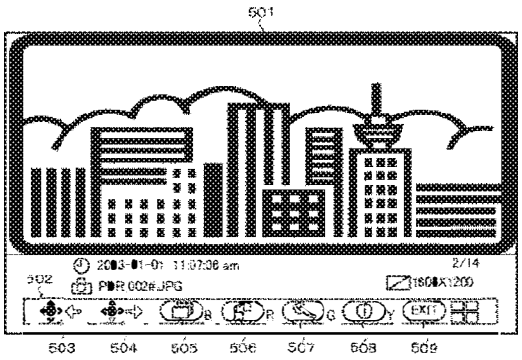


Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 82 of 398

[Patent Claims]

[Claim 1]

A means for reading out the information on the image data and the image from the medium on which the image data constituting each of the plurality of images and the information on the image are recorded ;

A means for selectively outputting an image signal corresponding to a 1 display form for processing information concerning the read image data and the image and displaying the plurality of images on a single screen and an image signal corresponding to a 2 display form for displaying one of the plurality of images on a single screen ;

A display means for displaying the image signal ;

The image data and the information reading means and the image signal output means are controlled to display an image based on the image signal in the 1 display form or to display or switch in the 2 display form.

Control means for controlling to display an image based on the image signal, information on the image, and an operation guide for executing a function accompanying a display state of the image on the same screen of the display means ;

A providing image display device.

[Claim 2]

The image data and the information reading means are for reading the image data and the information related to the image under the control of the control means from a plurality of media in which the image data constituting a plurality of images and the information relating to the image are recorded. The image display device according to claim 1, wherein the display means displays an image read from any of the media.

[Claim 3]

An image display apparatus according to claim 1 or 2, wherein when said image data is recorded in said medium in a form containing audio data, said control means displays said audio data in said display means.

[Claim 4]

The control means has a function of controlling whether or not the information relating to the display image and the display of the operation guide on the display means are to be executed. An image display apparatus according to any one of claims 1 to 3, wherein, when the display of one or both of the information relating to the display image and the operation guide is not executed, the display position of the display image is changed.

[Claim 5]

The control means has a function of controlling information on the display image and a function of controlling whether or not the display of the operation guide on the display

means is performed, and a function of sequentially displaying an image based on the plurality of image data at a predetermined time interval on the display means, and the display of information related to the display image is stopped. An image display device according to any one of claims 1 to 4, wherein, when performing sequential display of said image, information relating to an image to be displayed is displayed on said display means at a predetermined timing.

[Detailed description of the invention]

[Technical field]

[0001]

The present invention relates to an image display apparatus and an image display method for reproducing and displaying a still image or a moving image recorded on a medium such as a memory card, and more particularly, to an image display apparatus in which an auxiliary display other than an image such as display of an operation procedure is appropriately and functionally performed and operability is enhanced.

[Background of the Invention]

[0002]

Recently, a digital camera having high resolution has been widely used, and a television

receiver having a large screen display device as a display device for the captured image has been used.

[0003]

That is, the digital camera has a function of recording a photographed still image or a moving image on a medium such as a memory card constituted by a flash memory or the like, and a television receiver.

A function for reading out a recorded image signal and generating a video signal and displaying the video signal is provided by mounting the memory card on a machine.

[0004]

As a memory card of a digital camera, a plurality of types of memory cards, such as Smart Media (registered trademark), SD (Secure Digital) memory cards, and memory sticks, have been applied.

[0005]

A memory card has increased in capacity and, for example, a memory card having a capacity of 1 GB has been commercialized, and the number of files of a still image or a moving image that can be stored in 1 memory cards has increased.

[0006]

Therefore, when a television receiver is applied as a memory card image viewer, the image file desired to be displayed on a screen can be easily selected and displayed as a display form. It is desired to have a function of realizing various types of display modes such as sequentially switching a plurality of images in a slide show manner, enlarging an image, or changing the display angle of an image by 90 °.

[0007]

Conventionally, several proposals have been made to use as a viewer of an image obtained by photographing a television receiver with a digital camera, and a television receiver having such a function has come into the market as a product. In view of the fact that it is not satisfactory for the user, there is a demand for realization thereof.

[0008]

For example, in Patent Document 1, when a memory card in which an image taken by a digital camera is stored is mounted on a television receiver, a display application is automatically started, or a broadcast program is viewed. While there has been proposed a proposal in which an image read from a memory card is displayed on a child screen or an icon having the same color and an array as that of a 4 color key of a remote controller is displayed on a screen and various kinds of processing can be executed, there is a problem that the disclosed function is small and the processing cannot be executed functionally.

[Patent document 1]Japanese Patent Laid-Open No. 135676 2002

[Disclosure of invention]

[Problem to be solved by the invention]

[0009]

In view of the above, it is an object of the present invention to provide an image display apparatus in which, when a plurality of functions are respectively executed, the operation can be appropriately and appropriately guided to the user, thereby improving the operability.

[Means for solving the problem]

[0010]

The image display device of the present invention is configured to read out information on the image data and the image from a medium in which the image data constituting each of the plurality of images and the information relating to the image are recorded. A means for selectively outputting an image signal corresponding to a 1 display form for processing information concerning the read image data and the image and displaying the plurality of images on a single screen and an image signal corresponding to a 2 display form for displaying one of the plurality of images on a single screen ;Display means for displaying the image signal, and display means for controlling the image data and the information read

means and the image signal output means to display an image based on the image signal in the 1 display form or displaying the image signal in the 2 display form or the second display form, and an image based on the image signal ;The display device is provided with a control means for controlling an operation guide for executing a function related to the image and an operation guide for executing a function accompanying a display state of the image on the same screen of the display means.

[Effect of the Invention]

[0011]

According to the invention, a plurality of functions which are convenient for a user are each operated in detail.

As a result, it is possible to guide the user so that operability can be improved.

[Best mode for carrying out the invention]

[0012]

Hereinafter, embodiments of the present invention will be described in detail with reference to the accompanying drawings. FIG. 1 is a circuit block showing an outline of a television receiver 100 equipped with an image display device according to the present invention.

[0013]

The television receiver 100 shown in FIG. 1 is a device capable of receiving digital broadcasting, and has an input terminal 102 which receives a satellite digital TV broadcast signal received by an 101 for receiving a BS (Communications Satellite) / CS (USB) digital broadcast. Broadcasting Satellite. Then, the broadcast signal supplied to the input terminal 102 is supplied to the tuner 103 for satellite digital broadcasting, so that a broadcast signal of a desired channel is selected.

[0014]

In other words, in the tuner 103, a desired channel of the satellite digital broadcast received based on the control signal from the control unit 106 is selected, and the selected broadcast signal is selected. After being supplied to the PSK (Phase Shift Keying) demodulator 104 and demodulated into digital video and audio signals, the signal is output to the signal processor 105.

[0015]

The signal processing unit 105 separates the video packet and the audio packet based on the identification information (ID) included in the bit stream of the received signal, and further separates additional information such as program information.

[0016]

Further, a terrestrial digital television broadcast (terrestrial digital broadcast) signal received

by an antenna 107 for receiving terrestrial broadcast is supplied to a tuner 109 for terrestrial digital broadcasting via an input terminal 108, and a broadcast signal of a desired channel is selected by a control signal from the control unit 106.

[0017]

The broadcast signal selected by the tuner 109 is supplied to an OFDM (Orthogonal Frequency Division Multiplexing) demodulator 110, demodulated into a digital video signal and audio signal, and then output to a signal processing unit 105.

[0018]

The signal processing unit 105 separates the packet based on the identification information (ID) included in the bit stream of the received signal, and separates the additional information.

[0019]

Also, the terrestrial analog television broadcast signal received by the terrestrial broadcast reception antenna 107 is supplied to the terrestrial analog broadcast tuner 111 via the input terminal 108, and the tuner 111 selects a broadcast signal of a desired channel based on the control signal from the control unit 106. Then, the broadcast signal selected by the tuner 111 is supplied to the analog demodulator 112, demodulated into an analog video signal and an audio signal, and then output to the signal processor 105.

[0020]

The signal processing unit 105 selectively performs predetermined digital signal processing, for example, on the digital video signal and the audio signal supplied from the PSK demodulator 104 and the OFDM demodulator 110, respectively, and outputs the video signal to the graphic processing unit 113 and the audio signal to the audio processing unit 114.

[0021]

In other words, in digital broadcasting, a video signal and an audio signal are subjected to compression encoding processing based on a predetermined format, and a signal processing unit 105 has a function of decoding a compression-encoded signal and converting it into an uncompressed digital signal. Still image data, moving image data, and audio data read from a memory card will be described later.

It has a function of converting the digital signal into an uncompressed digital signal.

[0022]

Further, a plurality of (4 in the illustrated case) input terminal 115,116,117,118 are connected to the signal processing unit 105. Each of the input terminals 115 to 118 allows an analog video signal and an audio signal to be input from the outside of the digital television

broadcast receiver 100.

[0023]

Then, the signal processing unit 105 selectively digitizes analog video and audio signals supplied from the analog demodulator 112 and the input terminals 115 to 118, respectively. After a predetermined digital signal processing is performed on the digitized video signal and audio signal, the digital video signal is output to the graphic processing unit 113 and the audio processing unit 114.

[0024]

The graphic processing unit 113 has a function of superimposing an OSD signal generated by an OSD (On Screen Display) signal generating unit 119 on a digital video signal supplied from the signal processing unit 105 and outputting the superimposed signal. The graphic processing unit 113 can selectively output an output video signal of the signal processing unit 105 and an output OSD signal of the OSD signal generating unit 119, and combine and output the two output signals so as to constitute a half of the screen.

[0025]

The OSD signal generation unit 119 generates an OSD signal for displaying the contents of an image by characters under the control of the control unit 106 or an OSD signal for displaying an icon serving as an operation guide of an operation, and will be described in

detail later.

[0026]

The digital video signal output from the graphic processing unit 113 is supplied to the video processing unit 120. The video processing unit 120 converts the input digital video signal into a video signal of a format that can be displayed on the video display unit 121, and outputs the video signal to the video display unit 121 so as to display the video and to output the video signal to the outside via the output terminal 122.

[0027]

Further, the audio processing unit 114 converts the input digital audio signal into an analog audio signal of a format which can be reproduced by the speaker 123, and then outputs the analog audio signal to the speaker 123 to reproduce the audio and to output it to the outside via the output terminal 124.

[0028]

Here, in the digital television broadcast receiving apparatus 100, all the operations including the above-described various receiving operations are comprehensively controlled by the control unit 106.

[0029]

The control unit 106 includes a CPU (Central Processing Unit) and a ROM (Read Only

Memory) 125 which stores control programs to be executed by the CPU. This system is provided with a RAM (Random Access Memory) 126 for providing a work area to the CPU and a nonvolatile memory 127 for storing various kinds of setting information and the like.

[0030]

The control unit 106 is connected with an operation unit 128 and a light receiving unit 130 that receives an infrared signal transmitted from the remote controller 129. The operation unit 128 is constituted by a plurality of operation switches provided on, for example, a front cabinet of the television receiver 100, and is operated by a user together with the remote controller 129. It is possible to send an operation signal to the control unit 106, start channel selection, and adjust or set an operation of the television receiver 100.

[0031]

Further, a card holder 133 to which the 1 memory card 132 can be inserted is connected to the control unit 106 via a card I / F (Interface) 131, and a card holder 136 to which the 2 memory card 135 can be mounted is connected via a card I / F 4.

[0032]

The 1 memory card 132 and the 2 memory card 135 store still image data, moving image data, and audio data taken by a digital camera, for example, and the memory card 132,135 is

mounted on the card holder 133,136. The control unit 106 reads out the image data and the audio data and outputs them to the signal processing unit 105.

[0033]

The 1 memory card 132 is, for example, an SD memory card or a memory stick, and the 2 memory card 135 is, for example, a smart medium. Since the SD memory card and the memory stick have the same external dimensions, it is possible to use the card holder 133 in common.

[0034]

Further, the control unit 106 is connected to the 1 LAN (Local Area Network) terminal 138 via the communication I / F 7. Thus, the control unit 106 can transmit information via the communication I / F 131 to a recording device such as a LAN-compatible HDD (Hard Disk Drive), which is connected to the 1 LAN terminal 138 and is not shown, for example, and the like. 7. In this case, the control unit 106 has a DHCP (Dynamic Host Configuration Protocol) server function, and assigns an IP (Internet Protocol) address to the LAN-compatible HDD connected to the 1 LAN terminal 138.

[0035]

Further, the control unit 106 is connected to the 2 LAN terminal 140 via the communication I / F 9. As a result, the control unit 106 can transmit information to the device (not shown)

connected to the 2 LAN terminal 140 via the communication I / F 9.

[0036]

Further, the control unit 106 is connected to the USB terminal 142 via a USB I/F141. Thus, the control unit 106 can transmit information via a USB I/F141 and an unillustrated device connected to the USB terminal 142.

[0037]

Further, the control unit 106 is connected to the I. Link terminal 144 via a i.Link I/F143. Thus, the control unit 106 can perform information transmission through a i.Link I/F143 and an unillustrated device connected to the I. Link terminal 144.

[0038]

FIG. 2 is a diagram showing an example of key arrangement of the remote controller 129. The remote controller 129 is provided with a power key 201 for switching on / off the power of the television receiver 100, a numeric key 202 for switching a channel or inputting numerical data, and a supply source of a signal to be viewed. An input changeover key 203 for switching between a memory card 132,135 and a broadcast reception signal, an EXIT key 204 for terminating the processing or returning to a previous screen, a cursor key 205 for moving a cursor to a selected item displayed on a screen of a video display 121, and a cursor are displayed. This system is provided with a decision key 206 for registering a moved item,

a blue key 207, a red key 208, a green key 209, and a yellow key 210 constituting a 4 color key.

[0039]

Next, the operation of the image display apparatus of the present invention mounted on the television receiver 100 shown in FIG. 1 will be described in detail.

[0040]

In FIG. 1, when the 1 memory card 132 and the 2 memory card 135 are respectively mounted on the card holders 130 and 133, the control unit 106 detects this and automatically sets the memory card reproduction mode. In other words, the control unit 106 generates an OSD signal for a media selection screen for selecting one of the 2 memory cards 132,135 using the OSD signal generation unit 119, and supplies the OSD signal to the video display unit 121 via the video processing unit 120 from the graphic processing unit 113 to display the selection screen on the screen.

[0041]

FIG. 3 shows an example of a media selection screen. On the screen 301, an icon indicating a memory card is schematically displayed at a central portion. From the left, "SM" (Smart Media) 302, "SD" (SD Memory Card) 303, and "MS" (Memory Stick) 304. In addition, in FIG. 3,

each memory card is represented simply by an initial, but it is easier to understand if each of the set logo marks is used.

[0042]

In FIG. 3, the entire "MS" 304 is covered with a plurality of horizontal lines, which indicates that the display is dark, and that the card holder 133 is not mounted. Another "SM" 302, "SD" 303 indicates that it is brightly lit and is attached to the card holder 133,136. Further, the periphery of "SD" 303 is shaded, indicating that the cursor 305 is now located.

[0043]

Further, on the screen 301, a type of an image (a still image or a moving image) and a quantity (a number of files) recorded in an SD memory card in which a cursor 305 is currently located are shown. In the example shown in FIG. 3, a still image is indicated by a *******-* 306 and a moving image is indicated by a TV camera mark 307, and in the example of FIG. 14, a moving image is recorded as 2 programs (file).

[0044]

When the cursor 305 is first positioned after the memory card 132,135 is mounted on the card holder 133,134, the control unit 106 reads out the file information recorded in the memory card. On the basis thereof, an OSD signal is generated and displayed, and the read information used for display is stored in the nonvolatile memory 127 or the RAM 125 by the

control unit 106.

[0045]

When the media selection screen 301 shown in FIG. 3 is displayed in a state in which the same memory card is mounted, the recorded image information is read from the nonvolatile memory 127 or the RAM 125 and displayed. Thus, it is possible to display the recorded image information faster than reading from the memory card.

[0046]

In addition, an icon display area 308 in which an icon corresponding to a key of the remote controller 129 is displayed is provided at the lowermost part of the screen 301 of FIG. 3, and FIG. 3 shows the icon display area. A thumbnail display icon 309 for displaying a list of images recorded on a memory card in which a cursor 305 is located and an input switching icon 310 for switching to viewing of a television broadcast program are displayed.

[0047]

The thumbnail display icon 309 is of the remote controller 129. It is shown that it is executed by operating the determination key 206 located at the center of the cursor key 205 indicated by the arrow, and the input switching icon 310 indicates that the input switching key 203 of the remote controller 129 has only to be operated because the same mark is used.

[0048]

Data for displaying the icon 309,310 is stored in advance in the ROM 125, and the control unit 106 reads data appropriately and converts the data into an OSD signal for display by the OSD signal generation unit 119.

[0049]

In FIG. 3, when the decision key 206 of the remote controller 129 is operated, the control unit 106 is operated. Thumbnail information is read from a memory card 132 and sent to a signal processing part 105 and processed, and a graphic processing part 113 performs processing for displaying a thumbnail image of a total of 12 still images in 3 rows and 4 rows on a screen of a video display 121.

[0050]

Further, the control unit 106 is stored in the nonvolatile memory 127 or RAM.

By reading out the recorded image information of the D, using an OSD signal generating part 119, an OSD signal composed of character information showing the contents of one of the displayed thumbnail images (selected by a cursor) is generated and supplied to a graphic processing part 113. Further, data of the logo mark corresponding to the key of the remote controller 129 usable in the thumbnail image display state is read from the ROM 125, and an OSD signal for displaying the data is generated and sent to the graphic processing

unit 113.

[0051]

The graphic processing unit 113 superimposes the thumbnail image signal from the signal processing unit 105 and the OSD signal from the OSD signal generating unit 119, and transmits the superimposed signal from the video processing unit 120 to the video display unit 121 for display.

[0052]

As a result, a screen shown in FIG. 4 is displayed. 12 thumbnail images are displayed at the center of the screen 401. Of the 12 images, specific information of an image in which a cursor 402 indicated by a hatched frame is located is shown below the thumbnail image display area. As specific information, the image capturing date and time, the file name, the number of all the images (files), and the resolution are used.

[0053]

Further, a display area 403 of an icon corresponding to a key of the remote controller 129 is provided at the lowermost portion of the screen 401, and 6 icons are displayed. The icon 404 is an icon for displaying an image in which the cursor 402 is located by operating the determination key 206. The 2 to 2 from the left from the left to right from the left correspond to the 4 color keys 207 to 210 of the remote controller 129, and a symbol

indicating a function is displayed in an oval frame having the same color as that of the color key.

[0054]

Specifically, the 2 position from the left is a slide show icon 405 showing a so-called slide show in which all of the still images are automatically switched and displayed in an oval frame of blue, and the next is a display angle switching icon 406 in which a symbol for switching the display angle of an image is displayed in a red oval frame.

[0055]

Further, the next is a screen saver time setting icon 407 which is shown with a symbol for setting the time of screen saver in a green oval frame, and next is a moving picture thumbnail image display icon 408 for switching a screen to a thumbnail image display of a moving picture, with a television camera symbol shown in a yellow oval frame. When the corresponding color key of the remote controller 129 is operated, the function is executed.

[0056]

In addition, in the drawing, B, R, G, and Y are assigned to the icons of blue, red, green, and yellow, respectively, indicating that they are icons accompanied by color information.

[0057]

Displayed on the rightmost side is an EXIT icon 409 which indicates that the EXIT key 204 has

only to be operated to return to the media selection screen (FIG. 3).

[0058]

Further, a symbol (actually, a logo mark) 410 indicating the type of a memory card in which the displayed image data is stored is shown at an upper right of the screen 401, and FIG. 4 shows an SD memory card.

[0059]

On the screen of FIG. 4, when the determination key 206 of the remote controller 129 is operated, a single display screen of an image in which a cursor 402 exists is displayed. In other words, the control unit 106 reads out data of an image in which the cursor 402 is present from the memory card, sends the data to the signal processing unit 105, performs processing such as decoding, converts the data into an uncompressed digital video signal, and sends the digital video signal to the graphic processing unit 113.

[0060]

Further, the control unit 106 continuously displays the information on the image that has been displayed until now, and reads the data from the ROM 125 and converts the data into an OSD signal by the OSD signal generating unit 119 and sends it to the graphic processing unit 113 in order to display a new icon in the icon display area.

[0061]

As a result, an image shown in FIG. 5 is displayed on the video display unit 121. In FIG. 5, the image selected from the thumbnail image of FIG. 4 is displayed alone on the screen 501, the information of the image displayed on the lower portion thereof is displayed, and the icon corresponding to the key of the remote controller 129 is displayed in the lowermost icon display region 502.

[0062]

In other words, an image return selection icon 503 is displayed on the leftmost side of the screen in the thumbnail image shown in FIG. 4 so as to be switched to an image immediately preceding one of the images currently displayed in a single display, and subsequently, an image advance selection icon 504 for switching and displaying the image is displayed in a similar manner. It is shown that these icons 503,504 are executed by operating the open arrow direction keys of the cursor keys 205 of the remote controller 129.

[0063]

Further, the following 4 icons correspond to a color key of the remote controller 129, and a blue color is a slide show icon 505 and a next red color is a display angle switching icon 506. Further, a green color is an enlarged display icon 507, a display image is enlarged when a green key 209 is operated, a yellow color is an information display switching icon 508, and a

yellow key 210 is operated once. When the display of information such as the date and time of photography and the file name is stopped and disappears, the icon display area 502 also disappears from the screen 501, and the still image only is displayed. Once the yellow key 210 is operated, it returns to the state of FIG. 5.

[0064]

Finally, the icon displayed to the right is an EXIT icon 509, which indicates that when the EXIT key 204 of the remote controller 129 is operated, a thumbnail image display, that is, a return to the display state of FIG. 4 is displayed.

[0065]

First, the memory card 132,135 is mounted on both of the card holders 133,136 shown in FIG. 1. A basic operation procedure for displaying a still image to a single image display screen (FIG. 3) via a thumbnail image display screen (FIG. 4) is described while a medium selection screen (FIG. 5) is displayed, and a television broadcast program viewing state will be described. The operation in the case where the input switching key 203 of the remote controller 129 is operated and the media selection screen shown in FIG. 3 is displayed is also the same as that in the case where the memory card storage image information is written into the nonvolatile memory 127 or the RAM 125.

[0066]

When only one of the 1 memory cards is loaded, the media selection screen shown in FIG. 3 is not displayed, and the thumbnail display screen shown in FIG. 4 is displayed suddenly.

[0067]

Further, when the 1 memory card is loaded from the state in which the 2 memory cards have already been mounted, a thumbnail image of the 2 memory card is displayed.

[0068]

Further, in the case where the determination key 206 of the remote controller 129 is operated from the screen shown in FIG. 3, a thumbnail image of a still image is displayed. In this case, a thumbnail image of a moving image may be displayed, and when a still image is not recorded at all, a thumbnail image of a moving image may be displayed suddenly.

[0069]

A description will be given of a portion of the processing described above based on the flowcharts shown in FIGS. 6 and 7.

.

[0070]

FIG. 6 is a flowchart showing a process for displaying information relating to an image recorded on a memory card, and is started at step S 601 in step S 602. If it is determined

whether or not a plurality of memory cards have been mounted, and it is determined that a plurality of memory cards have been mounted, a media selection screen is displayed in step S 603, and the process proceeds to step S 604.

[0071]

In step S 604, data related to an image recorded from the memory card from which the cursor has been moved is read and stored in the nonvolatile memory 127 or the RAM 125, and then, in step S 605, the number of still images and the number of moving images are displayed based on the stored data.

[0072]

Next, in step S 606, a determination is made as to whether or not a request for thumbnail image display has been made, and if so, then the process proceeds to step S 607, where a thumbnail image display is performed and a process for displaying a single screen is performed.

[0073]

Next, in step S 608, a determination is made as to whether or not a request for viewing a television program has been made, and if there is a request, a program is viewed in step S 609. In other words, the control unit 106 controls the signal processing unit 105 to transmit the video signal obtained by receiving the broadcast signal and transmitting the video signal

to the graphic processing unit 113, and transmits the received audio signal to the audio processing unit 114.

[0074]

In step S 610, a determination is made as to whether or not a media playback image display request has been made, and if there is a media playback image display request, a media selection screen is displayed in step S 611, and further, step S 612 is performed. Information on a recording image file stored in a nonvolatile memory 127 or a RAM 125 of a memory card in which a cursor is positioned on a media selection screen is read, and the number of files of still image / moving image is displayed.

[0075]

By such processing as described above, it is possible to quickly display the type of the image stored in the memory card and the number of the files.

[0076]

Further, FIG. 7 is a flowchart for executing a screen display process corresponding to the number of attached memory cards.

[0077]

In FIG. 7, a determination is made as to whether or not a media playback instruction has been issued in step S 701 and a media playback instruction has been issued in step S 702. If

it is determined that there is a reproduction instruction, a determination is made as to whether or not 2 types of memory cards have been mounted in step S 703, and if 2 types of memory cards have been mounted, then the process proceeds to step S 704.

[0078]

In step S 704, a medium (memory card) selection screen is displayed, and then, in step S 705, an image recorded on the memory card in which the cursor is moving is divided into a still image and a moving image, and the number of files is displayed.

[0079]

Next, in step S 706, a determination is made as to whether or not a memory card has been selected, and when selected, a file list of the memory card selected in step S 707 is displayed as a thumbnail image.

[0080]

Next, in step S 708, a determination is made as to whether or not a single image display or a request for slide show has been made, and if yes, a single image display or a slide show is executed in step S 709.

[0081]

Next, in step S 710, a determination is made as to whether or not a request for thumbnail

display has been made, and if so, then the process returns to step S 704. If there is no request for thumbnail display, a determination is made in step S 711 as to whether or not an instruction to end the card playback display has been issued, and if so, then the process is terminated in step S 712.

[0082]

If it is determined in step S 703 that only 1 types of memory cards are mounted, in step S 713, a thumbnail display is performed on the file list of the attached memory card.

[0083]

Next, in step S 714, a determination is made as to whether or not there has been a request for a single image display or a slide show, and if so, a single image display or a slide show is performed in step S 715.

[0084]

Next, in step S 716, a determination is made as to whether or not a request for thumbnail display has been made, and if YES, then the process returns to step S 713. If there is no request for thumbnail display, a determination is made in step S 717 as to whether or not an instruction to end the card playback display has been issued, and if so, then the process is terminated in step S 712.

[0085]

As described above, since the processing is changed according to the number of attached memory cards (type), when only 1 memory cards are mounted, it is possible to skip and process an unnecessary screen (media selection screen), so that the processing can be simplified and the operation can be easily performed.

[0086]

Next, details of the image display function in the image display device of the present invention will be described. The state shown in FIG. 5 shows a single image display state selected from a thumbnail image display state, and in this state, for example, a yellow key 210 of the remote controller 129 is operated. As shown in FIG. 8, the control unit 106 controls the OSD signal processing unit 119 or the graphic processing unit 113 to stop the display of the information on the displayed image, and a single image and an icon in the icon display area 802 are displayed on the screen 801.

[0087]

Further, when the yellow key 210 of the remote controller 129 is operated, the control unit 106 controls so as to stop the display of the icon, so that, as shown in FIG. 9, only the image is displayed on the screen 901, and when the yellow key is operated again, the display mode of FIG. 5 is obtained.

[0088]

When, for example, a slide show is executed from the state of FIG. 5, the blue key 207 of the remote controller 129 is operated. As a result, the control unit 106 sequentially reads out the image data stored in the memory card, sends the data to the signal processing unit 105, converts the data into uncompressed digital image data, and outputs the data to the graphic processing unit 113.

[0089]

In the graphic processing unit 113, an information signal related to an image supplied for display from the OSD signal generation unit 119 is superimposed on the image data and is output to be displayed on the video display unit 121.

[0090]

At this time, in the state shown in FIG. 8 or FIG. 9, in which the display of information relating to the displayed image is stopped, the control unit 106 operates so as to read the information on the image displayed on the nonvolatile memory 127 or the RAM 125 and to forcibly display the image for a predetermined time.

[0091]

Also, in this manner, in a situation where the information concerning the displayed image is not displayed, slide price is displayed.

In addition, even when the user manually switches the display image, it is preferable that information relating to an image be displayed in a similar manner for a predetermined time.

[0092]

At this time, the timing to be displayed may be changed from a new image to a new image or before the image is switched. Alternatively, it may be configured so as to be displayed over the image and the new image that have been displayed so far, or may be configured so as to be displayed in a form that the image is not superimposed on the image but is inserted into the image switching point.

[0093]

FIG. 10 shows a state in which information related to an image is displayed when the display image is switched in a state in which information regarding an image is not displayed, and shows a state in which the information 1002 relating to the image is displayed on the screen 1001.

[0094]

FIG. 11 is a flowchart for explaining again the processing at the time of switching the display image in a situation in which the display of the information relating to the image described above is stopped. In Fig.11, it is started at Step S1101 and the judgment of whether there was any image display demand of a memory card (media) at Step S1102 is made, and when

judged with it having been, the thumbnail indication of the still picture list is carried out from a media selection screen at Step S1103.

[0095]

Next, in step S 112, an image to be displayed in a single display is selected from the images displayed in thumbnail form, and is displayed together with information on the image (information) on the display screen 04.

[0096]

Next, when judged with it having been judged whether there was any display stop instruction of an information, and having occurred at Step S1105, only an image is expressed as Step S1106 (or an image and an icon).

[0097]

Next, the judgment of whether the display instruction of the following image occurred is made at Step S1107, when judged with it having been, the following image is expressed as Step S1108, and the information of the newly displayed image is further expressed as Step S1109 for a predetermined period. The thing of these steps S1108 and S1109 made reverse as an order of processing was described before is also possible.

[0098]

Next, the judgment of whether the thumbnail image display requirement occurred is

performed at Step S1110, and when judged with it having been, it returns to Step S1103. When the judgment of whether there was any instruction of the end of memory card reproduction at Step S1111 when judged with there having been nothing is performed and it is, processing is ended at Step S1112, and when judged with there having been nothing, it returns to Step S1107.

[0099]

When judged with there having been no display stop instruction of an information at Step S1105, It proceeds to Step S1113 and the judgment of whether the display instruction of the following image occurred is made, and when judged with it having been, the specified image is expressed as Step S1114 with an information.

[0100]

Next, the judgment of whether the thumbnail image display requirement occurred is performed at Step S1115, and when judged with it having been, it returns to Step S1103. When the judgment of whether there was any instruction of the end of memory card reproduction at Step S1116 when judged with there having been nothing is performed and it is, processing is ended at Step S1112, and when judged with there having been nothing, it returns to Step S1113.

[0101]

As described above, when the display image is automatically or manually switched in a state in which the display of information on the display image is stopped, the display image will be displayed next.

To accurately recognize the contents of a displayed image and to quickly select a target image from many images recorded in a memory card by displaying information of an image for a predetermined time.

[0102]

Next, a process of changing the display angle of an image will be described. In the screen shown in FIG. 4, when the red key 208 of the remote controller 129 is operated, the display angle of the image in which the cursor 402 is located is switched. In other words, the control unit 106 controls the graphic processing unit 113 or the video processing unit 120 to execute the process of switching the display angle of the selected image among the thumbnail images. Further, at this time, the control unit 106 stores information indicating that the display angle of the image has been changed in the nonvolatile memory 127 or the RAM 125.

[0103]

As a result of executing the process of changing the display angle of the image, as shown in

FIG. 12, the image is displayed in a state of being rotated counterclockwise by 90 degrees.

[0104]

In order to switch from the state shown in FIG. 12 to the single display of the image whose display angle is changed, the determination key 206 of the remote controller 129 corresponding to the single image display switching icon 1203 in the icon display region 1202 of the screen 1201 is operated.

[0105]

As a result, as shown in FIG. 13, the image whose display angle is switched in FIG. 12 is displayed alone in a state in which the display angle is switched.

[0106]

According to this embodiment, information indicating that the display angle of an image has been changed is stored in the nonvolatile memory 127 or RAM. For example, even when switching is once switched to view a reproduced image of a memory card after switching to viewing of a television program, information of an image whose display angle is switched from the memory is read, so that it is possible to return to the state shown in FIG. 12 or 13.

[0107]

FIG. 14 is a flowchart for explaining the display angle switching process described above again. In Fig.14, it is started at Step S1401 and the judgment of whether there was any image

display demand of a memory card at Step S1402 is made, and when judged with it having been, a still picture list is displayed with a thumbnail image at Step S1403.

[0108]

Subsequently, based on the displayed still picture list, processing of a thumbnail image display or a single image display is performed at Step S1404. Next, when judged with the judgment of whether the display angle changing instruction of the image occurred having been made, and it having been at Step S1405 Alteration data is memorized to nonvolatile memory 127 or RAM125 at Step S1406, and, subsequently an image is displayed at the angle based on data by Step S1407. When judged with there having been no display angle changing instruction at Step S1405, it returns to Step S1404.

[0109]

Next, in step S 141, a determination is made as to whether or not an image display request other than a memory card has been made, and when it is determined that the request has been made, the image requested in step S 08 is displayed in step S 09. When judged with there having been nothing, it returns to Step S1404.

[0110]

Next, in step S 141, a determination is made as to whether or not an image display request for the memory card has been received, and if it is determined that the request has been

made, an image of the memory card is displayed at a display angle based on the data stored in the memory in step S 10 in step S 11. If it is determined that there is no, the process returns to Step S 09.

[0111]

Subsequently, the judgment of whether there was any instruction of the end of memory card reproduction at Step S1412

If it is determined that there has been no process, the process ends in step S 141, and if it is determined that the process has not been performed, then the process returns to step S 13, and the process returns to step S 04.

[0112]

According to the embodiment described above, when the display angle of an image is changed, since the data is stored in the memory, a television broadcast program other than a memory card reproduced image is once viewed, and a memory card reproduced image is displayed again. Since an image with a changed display angle is displayed on the basis of the stored data in a state where the display angle is changed, it is possible to eliminate the need for changing the display angle of the image again.

[0113]

Next, a process of changing the display time interval of the slide show will be described. For example, in the screen shown in FIG. 8, when the blue key 207 of the remote controller 129 is operated, a slide show is started under the control of the control unit 106, and a screen at that time is shown in FIG. 15.

[0114]

In FIG. 15, images are sequentially switched and displayed on a screen 1501, and information on the display image (information) is also displayed. Further, in the icon display region 1502, an icon corresponding to the color key of the remote controller 129 is displayed, and a pause icon 1503 for temporarily stopping the switching process of the slide show image corresponding to the red key is displayed. A display interval setting icon 1504 for setting a display time interval of a slide show corresponding to a green key is displayed.

[0115]

In the state shown in FIG. 15, when the green key 209 of the remote controller 12 is operated, a window 1602 for setting a time interval of a slide show is displayed on the screen 1601 as shown in FIG. 16. In the window 1602, 6 set time periods are displayed, and it is possible to change the display interval of the slide show by moving the cursor 1603 indicated by the cursor key 205 of the remote controller 129 to the display frame of the time required to set the cursor indicated by the diagonal line and operating the decision key 206. Further, by

operating the EXIT key 204 of the remote controller 129, the display of the window 1602 for setting the time interval can be stopped.

[0116]

Processing for setting the time interval of the slide show described above will be described again with reference to the flowchart of FIG. 17.

[0117]

When judged with it having been started at Step S1701, the judgment of whether there was any execution demand of a slide show at Step S1702 having been made in Fig.17, and there having been a demand, In step S 170, the image data is read out from the memory card and sequentially switched and displayed at a time interval based on the data stored in the memory card 03.

[0118]

Subsequently, the judgment of whether there was any change request of a display time interval at Step S1704 is made, If judged with there having been a demand, a time interval setting screen will be expressed as Step S1705, the data which changed the time interval at Step S1706, and was memorized by the memory will be updated, and it will return to Step S1703, and will perform the slide show in a new time interval.

[0119]

When judged with there having been no change request of a display time interval at Step S1704, When the judgment of whether the termination indication of the slide show occurred is made and it is at Step S1707, processing is ended at Step S1708, and when there is no termination indication, it returns to Step S1703.

[0120]

In the embodiment described above, while the slide show is being executed, a screen for changing the time interval is called, and the time interval can be changed based on the screen.

As a result, it is possible to immediately resume a slide show at a changed time interval interval, which has an effect of simplifying the operation.

[0121]

Next, an enlarged display process will be described. For example, in the screen shown in FIG. 8, an image is enlarged and displayed by operating the green key 209 of the remote controller 129, but in this embodiment, a mode in which the entire image is completely displayed is set in this embodiment.

[0122]

That is, as shown in FIG. 18, for example, the display state is slightly reduced with respect to

the display state shown in FIG. 8. Further, when the green key 209 of the remote controller 129 is subsequently operated in the display state shown in FIG. 18, an image magnified by 2 times as shown in FIG. 19 is displayed.

[0123]

In FIG. 19, an indication 1902 indicating that the display screen 1901 is displayed at an upper right of the display screen 2 is shown, and further, a triangle mark 1903 is displayed at the upper, lower, left and right ends of the screen, and an image is further continued outside the mark 1903. It should be noted that an image shown in FIG. 18 may be displayed for a predetermined time period and then automatically switched to a 2 × display image shown in FIG. 19.

[0124]

When the green key 209 of the remote controller 129 is further operated from the state shown in FIG. 19, an image enlarged by 4 times, for example, is displayed as shown in FIG. 20. On the screen 2001 of FIG. 20, an indication 2002 indicating that a 4 × display is made is provided on the upper right of the screen, and a triangular mark 2003 is displayed on the upper, lower, left, and right sides of the screen as in FIG. 19.

[0125]

In addition, in the process of enlarging the display screen, since 2 kinds of control, I. e.,

enlargement control of the screen and display control of information (information) relating to the display image, are possible, an icon corresponding to the color key of the remote controller 129 in the icon display area 1904 of FIG. 19 is also used as the green enlargement icon 1905. A yellow information display switching icon 1906 is displayed, and no symbol is displayed in the oval frame of blue and red, indicating that the blue key 207 and the red key 208 of the remote controller 129 have no function on the screen of FIG. 19.

[0126]

Now, the image enlargement processing described above will be described again based on the flowchart of FIG. 21. In FIG. 21, the process starts in step S 211, and a single display of a still image is performed in step S 01 (step S 02).

[0127]

Subsequently, the judgment of whether there was any enlarged display demand at Step S2103 is made, when judged with it having been, the overview of a still picture is expressed as Step S2104, and, subsequently an image is expressed as Step S2105 twice.

[0128]

Next, a determination is made as to whether or not an enlargement display request has been made in step S 211, and when it is determined that a request has been made, a 4 × image is displayed in step S 06 07.

[0129]

Subsequently, the judgment of whether there was any enlarged display demand again at Step S2108 is made, and when judged with it having been, it returns to Step S2107 and continues the display of an image 4 times. In other words, in this embodiment, 4 times display is maximized.

[0130]

When judged with the judgment of whether enlarged display termination indication occurred having been made, and it having been at Step S2109, when judged with there having been no enlarged display demand at Step S2108, it switches to a normal standard image display at Step S2110, and ends processing at Step S2111.

.

[0131]

When judged with there having been no enlarged display demand at Step S2106, When the judgment of whether enlarged display termination indication occurred is made and it is at Step S2112, it proceeds to Step S2110, switches to the display of a normal standard image, and processing is ended, and when judged with there having been no enlarged display termination indication, it returns to Step S2105 and continues the display of an image twice.

[0132]

Although Step S2104 and Step S2105 shall be interlocked with the decision processing of Step S2103 and shall be processed automatically, [among the flows described above] [Step] When processing is once interrupted for Step S2104 and there is an enlarged display demand further, it may constitute so that Step S2105 may be performed.

[0133]

In the above described image enlargement display processing, since a step of displaying an entire image of an image is provided, it is possible to reliably recognize how the original image is enlarged, so that the operability is improved.

[0134]

Further, a process of moving the display image will be described. For example, in a 2 × image display state shown in FIG. 19, the display position of an image can be changed by operating the cursor key 205 of the remote controller 129.

[0135]

As to whether or not movement is possible, the triangular mark 1903 displayed on the upper, lower, left, and right sides of the screen serves as an indicator, and if this is displayed, it can be moved in that direction, but when the display disappears, it is moved to the end of the image.

[0136]

Referring to the flowchart shown in FIG. 22, the process will be described again. In Fig.22, it is started at Step S22 and the judgment of whether there was any enlarged display demand at Step S2202 is made, and when judged with it having been, an expansion image is expressed as Step S2203 with a four-directions mark.

[0137]

Next, in step S 222, a determination is made as to whether or not there is a request for changing the display position, and if it is determined that there is a request, the display position is changed to the display position in step S 04 and displayed together with the 4 marks in step S 5.

[0138]

Next, it is determined in step S 222 whether or not the display has reached the end, and when it is determined that the display has not been reached, the process returns to step S 222, and the process returns to step S 06 in FIG. 04.

[0139]

The display of the mark of a direction which reached the end at Step S2207 when judged with the display having reached the end is stopped, and the judgment of whether subsequently the return demand of the display position occurred at Step S2208 is made, and

when judged with it having been, it returns to Step S203. The judgment of whether when judged with there having been nothing, enlarged display termination indication occurred at Step S2209 is made, when judged with it having been, processing is ended at Step S2210, and when judged with there having been nothing, it returns to Step S2207.

[0140]

It judges whether at Step S2204, when judged with there having been no display position change request, it proceeded to Step S2211 and enlarged display termination indication occurred, when it is, processing is ended, and when there is nothing, it returns to Step S2204.

[0141]

According to the embodiment described above, when an image is moved, it is configured so that the display of a mark in that direction is stopped and displayed when the image is moved to an end, so that the user can accurately determine the moving state of an image and unnecessary operation is not performed, thereby contributing to improvement in operability.

It is a thing.

[0142]

In the above description, a case in which a still image is exclusively displayed has been described, but a display example of a moving image will be described next. Although the display of the moving image is basically different from the display of the still image, there is a case where the moving image differs in detail, and a description will be mainly given.

[0143]

As shown in FIG. 4, when the yellow key 210 of the remote controller 129 is operated in the display state of the thumbnail image, the control unit 106 reads the thumbnail information of the moving image file from the memory card, sends the thumbnail information to the signal processing unit 105, performs processing, and outputs the result to the graphic processing unit 113. Further, the information of the moving picture is read from the nonvolatile memory 127 or the RAM 126 and supplied to the OSD signal generating unit 119, and data related to the icon is read out from the ROM 125 and supplied to the OSD signal generating unit 119 to be supplied to the graphic processing unit 113.

[0144]

In the graphic processing unit 113, these signals are mixed and sent to the video display unit 121 via the video processing unit 120 to be displayed. Thus, as shown in FIG. 23, a thumbnail display of a moving image is realized.

[0145]

In FIG. 23, a symbol (actually a logo mark) 2302 indicating a type of a memory card is displayed on the upper right of the screen 2301, and 12 images are displayed in a thumbnail manner at the center of the screen as in the case of a still image.

[0146]

Further, in the lower part of the area where the image is displayed, information of an image surrounded by a cursor 2303 indicated by a hatched frame is displayed. This information is basically the same as in the case of a still image, and the information on the photographing date and time, the name of the file, the image on which the cursor 2303 is located and the image on which the cursor is located, and the resolution are displayed.

[0147]

In addition, audio information may be added to a moving image, and a note sign 2304 indicates whether or not audio is added, and in the example of FIG. 23, a moving image file to which audio information is added is used. Note that, when no music information is added, it is possible to express the music information by, for example, drawing an oblique line on the note mark 2304.

[0148]

In addition, in FIG. 23, an icon 2306 for starting reproduction of a moving picture by switching to a single display and a screen saver setting icon 2307 for setting a display time

when using a moving picture as an image of a screen saver are displayed in an icon display area 2305. A still image thumbnail display switching icon 2308 for switching to thumbnail display of a still image and an EXIT icon 2309 for returning a display screen are displayed.

[0149]

In FIG. 23, a determination key 206 of the remote controller 129 is operated. A control part 106 reads out actual moving image data of a thumbnail image in which a cursor 2303 is positioned from a memory card, and supplies it to a signal processing part 105 to be processed and displayed on a graphic processing part 113, and is displayed on a video display 121 via a graphic processing part and a video processing part 120.

[0150]

FIG. 24 shows an example in which a moving image is displayed, and a moving image is displayed at the center on a screen 2401. In addition, a display unit 2402 is provided at an upper portion of the screen in an analog manner, and the lower portion of the moving image is displayed with the information of the displayed image and the lowermost portion is provided with an icon display region 2403.

[0151]

In the icon display area 2403, an icon 2404,2405 for switching a moving image to be displayed to one preceding or one after a thumbnail image, and a moving image are

reproduced.

An icon 2406 for pause (pause) and a fast return icon 2407 of blue corresponding to a color key of the remote controller 129 ;A red fast forward icon 2408, a green enlarged icon 2409, and a yellow information display control icon 2410 are provided, and an EXIT icon 2411 for returning to a thumbnail display is provided. By operating these icons, it is possible to execute various functions.

[0152]

As described above, according to the image display device of the present invention, an image and information such as a shooting date and time and a file name related to the image are displayed on a screen, and further, the image is displayed on the display screen. Since an operable function is displayed in association with a key of a remote controller by an icon, a user can be easily operated.

[Brief Description of the Drawings]

[0153]

[Fig. 1]The circuit block figure showing the composition of the television receiver which mounts the image display device of this invention.

[Fig. 2]FIG. 4 is a block diagram showing an example of a key arrangement of a remote

controller applied to the apparatus of FIG. 1 ;.

[Fig. 3]FIG. 4 is a diagram showing an embodiment of a media selection screen in an image display device of the present invention ;.

[Fig. 4]FIG. 4 is a diagram showing an embodiment of a still image thumbnail display screen in an image display device of the present invention ;.

[Fig. 5]FIG. 4 is a diagram showing an embodiment of displaying a still image selected on a screen shown in FIG. 4 alone ;.

[Fig. 6]FIG. 4 is a flowchart illustrating processing of image related information displayed on a media selection screen ;.

[Fig. 7]FIG. 4 is a flowchart for explaining a process for displaying different images depending on the number of memory cards to be mounted ;.

[Fig. 8]FIG. 5 is a diagram for explaining a screen configuration when the display of information related to a display image is stopped ;.

[Fig. 9]FIG. 4 is a diagram illustrating a display image and a screen configuration when the display of an icon is stopped ;.

[Fig. 10]FIG. 4 is a diagram for explaining a screen display when a display image is switched in a state in which display of information related to a display image is stopped ;.

[Fig. 11]FIG. 4 is a flowchart illustrating an image display process shown in FIG. 10 ;.

[Fig. 12]FIG. 4 is a diagram illustrating an example of a display when a display angle of an image is changed in a thumbnail image ;.

[Fig. 13]FIG. 4 is a diagram for explaining an example of display when a display angle of a single display image is changed ;.

[Fig. 14]FIG. 3 is a flowchart for explaining processing for displaying images shown in FIG. 12 and FIG. 13 ;.

[Fig. 15]FIG. 4 is a diagram illustrating an example of a slideshow display ;.

[Fig. 16]FIG. 4 is a diagram for explaining an example of a screen for changing a time interval of an image display in a slide show ;.

[Fig. 17]FIG. 4 is a flowchart illustrating a process of changing a time interval of an image display of a slide show ;.

[Fig. 18]FIG. 4 is a diagram illustrating a process of image enlargement display ;.

[Fig. 19]The figure showing the display example of an enlarged picture twice.

[Fig. 20]The figure showing the display example of an enlarged picture 4 times.

[Fig. 21]Flowchart for explaining processing of image enlargement display

[Fig. 22]Flowchart for explaining image moving display processing

[Fig. 23]The figure showing the example of the thumbnail indication image of an animation.

[Fig. 24]The figure for describing the independent display example of video.

[Explanation of letters or numerals]

[0154]

100 -- Television receiver

101 -- Satellite dish

102 -- Input terminal

103. Digital satellite broadcast receiving tuner

104 -- PSK demodulator

105 -- Signal processing section

106 -- Control part

107 -- Terrestrial broadcasting receiving antenna

108 -- Input terminal

109. tuner for receiving terrestrial digital broadcast

110 -- OFDM demodulator

111. Terrestrial analog broadcast receiving tuner

112 -- Analog demodulator

113 -- Graphics operation part

114 -- Voice processing part

115,116,117,118 -- External input terminal

119 -- OSD signal generating part

120 -- Graphic processing part

121 -- Graphic display machine

123 -- Loudspeaker

125 -- ROM

126 -- RAM

127 -- Nonvolatile memory

128 -- Operating part

129 -- Remote controller

130 -- Light-receiving part

131,134 -- Card I/F

132,135 -- Memory card

133,136 -- Card holder

137,139 -- Communication interface

138,140 -- LAN terminal

141 -- USB I/F

142 -- USB terminal

143 -- i.link I/F

144 -- i.link terminal

A graphics operation part, 145 -- A voice processing part, 214-217 -- Input terminal,

(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2006-108749
(P2006-108749A)
(43)公開日　平成18年4月20日(2006.4.20)

(51)Int.Cl.			F I			テーマコード（参考）
H04N	5/93	(2006.01)	H04N	5/93	Z	5C025
G06F	3/048	(2006.01)	G06F	3/00	654B	5C053
G09G	5/00	(2006.01)	G09G	5/00	510M	5C082
H04N	5/45	(2006.01)	G09G	5/00	530A	5E501
			H04N	5/45		

審査請求 未請求　請求項の数 5　OL　（全 26 頁）

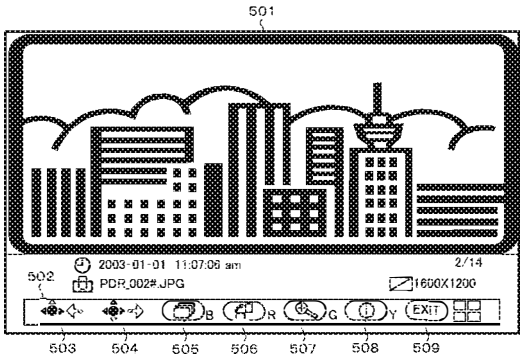
(21)出願番号　特願2004-288461 (P2004-288461)
(22)出願日　平成16年9月30日 (2004.9.30)

(71)出願人　000003078
株式会社東芝
東京都港区芝浦一丁目１番１号
(74)代理人　100109900
弁理士　堀口　浩
(72)発明者　鶴房　秀夫
埼玉県深谷市幡羅町一丁目９番地２　株式会社東芝深谷工場内
(72)発明者　土田　瞬一
東京都青梅市新町３丁目３番地の１　東芝デジタルメディアエンジニアリング株式会社内

最終頁に続く

(54)【発明の名称】画像表示装置

(57)【要約】
【課題】　メディアの静止画像及び動画像を表示する装置の操作性を向上させる。
【解決手段】　メモリカードから読出した情報に基づきサムネイル画像を表示する形態と、サムネイル画像での選択によりメモリカードから読出した画像データに基づく画像を表示する形態とを選択的に実行させるように構成すると共に、画像をこの画像に関連する情報と、表示状態に付随する機能を実行するための操作ガイドと一緒に画面表示するように構成した。また、表示画像に関連する情報を表示するか否か設定できるように構成した。さらに、画像に関連する情報を表示しない状態で表示画面を切換えた場合に、画像に関連する情報を強制的に表示するように構成した。
【選択図】図５



【特許請求の範囲】
【請求項１】
複数の画像をそれぞれ構成する画像データと、当該画像に関する情報とが記録されたメディアから前記画像データ及び画像に関する情報を読出す手段と、
前記読出された画像データ及び画像に関する情報を処理し、前記複数の画像を一画面で表示する第１の表示形態に対応する画像信号と、前記複数の画像の一つを一画面に表示する第２の表示形態に対応する画像信号とを選択的に出力する手段と、
前記画像信号を表示する表示手段と、
前記画像データ及び情報読出し手段及び前記画像信号出力手段を制御して前記画像信号に基づく画像を前記第１の表示形態で表示するかあるいは第２の表示形態で表示するか切換えると共に、前記画像信号に基づく画像と、当該画像に関する情報と、前記画像の表示状態に付随する機能を実行するための操作ガイドとを前記表示手段の同一画面で表示するように制御する制御手段と、
を具備したことを特徴とする画像表示装置。
【請求項２】
前記画像データ及び情報読出し手段は、それぞれが複数の画像を構成する画像データと、当該画像に関する情報が記録された複数のメディアから前記制御手段の制御の下に前記画像データ及び画像に関する情報を読出すものであり、さらにいずれのメディアから読出した画像を表示しているかを前記表示手段で表示するものであることを特徴とする請求項１に記載の画像表示装置。
【請求項３】
前記メディアに、前記画像データが音声データを含む形態で記録されている際に、前記制御手段が、前記音声データが含まれていることを前記表示手段で表示するものであることを特徴とする請求項１または２のいずれかに記載の画像表示装置。
【請求項４】
前記制御手段は、前記表示画像に関する情報及び前記操作ガイドの前記表示手段への表示を実行するか否か制御する機能を備え、前記表示画像に関する情報及び前記操作ガイドのいずれか一方あるいは両方の表示を実行しない場合に、前記表示画像の表示位置を変更するものであることを特徴とする請求項１乃至３のいずれかに記載の画像表示装置。
【請求項５】
前記制御手段は、前記表示画像に関する情報及び前記操作ガイドの前記表示手段への表示を実行するか否か制御する機能と、前記複数の画像データに基づく画像を前記表示手段に所定の時間間隔で順次表示する機能を備え、前記表示画像に関する情報の表示を停止した状態で、前記画像の順次表示を実行する際には、表示される画像に関する情報を所定のタイミングで前記表示手段に表示するものであることを特徴とする請求項１乃至４のいずれかに記載の画像表示装置。
【発明の詳細な説明】
【技術分野】
【０００１】
この発明は、メモリカード等のメディアに記録された静止画像あるいは動画像を再生して表示するための画像表示装置及び画像表示方法に関し、特に操作手順の表示等、画像以外の補助的な表示を適切に、かつ機能的に行って操作性を高めた画像表示装置に関する。
【背景技術】
【０００２】
近年、高解像のデジタルカメラが広く普及してきており、その撮影された画像の表示装置として大画面の表示手段を備えているテレビジョン受像機が用いられるようになってきている。
【０００３】
すなわち、デジタルカメラは撮影した静止画像あるいは動画像を、フラッシュメモリ等で構成されるメモリカード等のメディアに記録する機能を備えており、テレビジョン受像

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 140 of 398

機にそのメモリカードを装着して、記録した画像信号を読み出して映像信号を生成し表示させる機能を設けるようにしたものである。

【０００４】

デジタルカメラのメモリカードとしては、スマートメディア（登録商標）、ＳＤ（Secure Digital）メモリカード、メモリスティック等、規格の異なる複数種のものが適用されているため、テレビジョン受像機もそれらのメモリカードに対応したものとなっている。

【０００５】

メモリカードは、その容量が増大してきており、例えば１ＧＢの容量を持つものも商品化され、１枚のメモリカードに蓄積できる静止画像あるいは動画像のファイルの数もそれと共に増えてきている。

【０００６】

したがって、テレビジョン受像機をメモリカード画像ビューワーとして適用する際には、画面表示したい画像ファイルを簡単に選択できること、また表示の形態として、複数の画像をスライドショー的に順次切換表示したり、一つの画像を拡大表示したり、あるいは画像の表示角度を９０°変更したりする等、多様な表示形態を実現できること等の機能を備えていることが要望される。

【０００７】

従来、テレビジョン受像機をデジタルカメラで撮影した画像のビューワーとして利用するようにした提案が何件かなされており、また製品としてもそのような機能を備えたテレビジョン受像機が市場に登場するようになってきているが、ユーザにとって操作性という点で、充分満足のできるものがなく、その実現が要望されている。

【０００８】

例えば、特許文献１には、デジタルカメラで撮影した画像が記憶されているメモリカードをテレビジョン受像機に装着すると、自動的に、表示アプリケーションが起動するように構成したり、あるいは放送番組視聴中に、メモリカードから読出した画像を子画面表示させたり、あるいはリモートコントローラの４色キーと同じ色、配列のアイコンを画面表示して各種処理を実行できるようにした提案がなされているが、開示されている機能が少なく、処理も機能的に実行できないという問題を有している。

【特許文献１】特開２００２－１３５６７６号公報

【発明の開示】

【発明が解決しようとする課題】

【０００９】

この発明は、以上の点に鑑みてなされたものであり、複数の機能をそれぞれ実行する際に、その操作をより細部にわたって適切にユーザに案内できるようにして、操作性を向上させた画像表示装置を提供することを目的とする。

【課題を解決するための手段】

【００１０】

本発明の画像表示装置は、複数の画像をそれぞれ構成する画像データと、当該画像に関する情報とが記録されたメディアから前記画像データ及び画像に関する情報を読出す手段と、前記読出された画像データ及び画像に関する情報を処理し、前記複数の画像を一画面で表示する第１の表示形態に対応する画像信号と、前記複数の画像の一つを一画面に表示する第２の表示形態に対応する画像信号とを選択的に出力する手段と、前記画像信号を表示する表示手段と、前記画像データ及び情報読出し手段及び前記画像信号出力手段を制御して前記画像信号に基づく画像を前記第１の表示形態で表示するかあるいは第２の表示形態で表示するか切換えると共に、前記画像信号に基づく画像と、当該画像に関する情報と、前記画像の表示状態に付随する機能を実行するための操作ガイドとを前記表示手段の同一画面で表示するように制御する制御手段と、を具備したことを特徴とする。

【発明の効果】

【００１１】

本発明によれば、ユーザにとって便利な複数の機能を、それぞれ細部にわたって、操作

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 141 of 398

し易いしように、ユーザに案内することができるので、操作性を向上させることができるものである。

【発明を実施するための最良の形態】

【００１２】

以下、この発明の実施の形態について図面を参照して詳細に説明する。図１は、本発明に係る画像表示装置を搭載したテレビジョン受像機１００の概要を示す回路ブロックである。

【００１３】

図１のテレビジョン受像機１００は、デジタル放送の受信も可能な機器であり、ＢＳ（Broadcasting Satellite）／ＣＳ（Communications Satellite）デジタル放送受信用のアンテナ１０１で受信した衛星デジタルテレビジョン放送信号を受ける入力端子１０２を有している。そしてこの入力端１０２に供給される放送信号は、衛星デジタル放送用のチューナ１０３に供給されることにより、所望のチャンネルの放送信号が選局される。

【００１４】

すなわち、チューナ１０３では、制御部１０６からの制御信号に基づいて受信した衛星デジタル放送の所望のチャンネルを選局し、選局された放送信号は、ＰＳＫ（Phase Shift Keying）復調器１０４に供給されて、デジタルの映像信号及び音声信号に復調された後、信号処理部１０５に出力される。

【００１５】

信号処理部１０５は、受信信号のビットストリームに含まれる識別情報（ＩＤ）に基づいて、映像パケット、音声パケットを分離し、さらに番組情報等の付加情報を分離する。

【００１６】

また、地上波放送受信用のアンテナ１０７で受信した地上デジタルテレビジョン放送（地上波デジタル放送）信号は、入力端子１０８を介して地上デジタル放送用のチューナ１０９に供給され、制御部１０６からの制御信号によって、所望のチャンネルの放送信号が選局される。

【００１７】

このチューナ１０９で選局された放送信号は、ＯＦＤＭ（Orthogonal Frequency Division Multiplexing）復調器１１０に供給されて、デジタルの映像信号及び音声信号に復調された後、信号処理部１０５に出力される。

【００１８】

信号処理部１０５は、受信信号のビットストリームに含まれる識別情報（ＩＤ）に基づいてパケットを分離し、さら付加情報を分離する。

【００１９】

また、地上波放送受信用のアンテナ１０７で受信した地上アナログテレビジョン放送信号は、入力端子１０８を介して地上アナログ放送用のチューナ１１１にも供給され、チューナ１１１で制御部１０６からの制御信号に基づいて所望のチャンネルの放送信号が選局される。そして、このチューナ１１１で選局された放送信号は、アナログ復調器１１２に供給されてアナログの映像信号及び音声信号に復調された後、信号処理部１０５に出力される。

【００２０】

信号処理部１０５は、ＰＳＫ復調器１０４及びＯＦＤＭ復調器１１０からそれぞれ供給されたデジタルの映像信号及び音声信号に対して、例えば選択的に所定のデジタル信号処理を施し、映像信号をグラフィック処理部１１３へ、また音声信号を音声処理部１１４に出力している。

【００２１】

すなわち、デジタル放送においては、映像信号及び音声信号が所定のフォーマットに基づいて圧縮符号化処理を施されており、信号処理部１０５では圧縮符号化された信号を復号して非圧縮のデジタル信号に変換するという機能を備える。また、後述するメモリカードから読出された静止画像データ、動画データ及び音声データについても、所定の復号処

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 142 of 398

理を施して非圧縮のデジタル信号に変換する機能を備える。

【００２２】

また、信号処理部１０５には、複数（図示の場合は４つ）の入力端子１１５，１１６，１１７，１１８が接続されている。これら入力端子１１５～１１８は、それぞれ、アナログの映像信号及び音声信号を、デジタルテレビジョン放送受信装置１００の外部から入力可能とするものである。

【００２３】

そして、この信号処理部１０５は、アナログ復調器１１２及び各入力端子１１５～１１８からそれぞれ供給されたアナログの映像信号及び音声信号を選択的にデジタル化し、そのデジタル化された映像信号及び音声信号に対して所定のデジタル信号処理を施した後、グラフィック処理部１１３及び音声処理部１１４に出力している。

【００２４】

グラフィック処理部１１３は、信号処理部１０５から供給されるデジタルの映像信号に、ＯＳＤ（On Screen Display）信号生成部１１９で生成されるＯＳＤ信号を重畳して出力する機能を有する。このグラフィック処理部１１３は、信号処理部１０５の出力映像信号と、ＯＳＤ信号生成部１１９の出力ＯＳＤ信号とを選択的に出力すること、また、両出力をそれぞれ画面の半分を構成するように組み合わせて出力することができる。

【００２５】

ＯＳＤ信号生成部１１９は、制御部１０６の制御に基づき画像の内容を文字で示すためのＯＳＤ信号、あるいは操作のガイドとなるアイコンを表示するためのＯＳＤ信号を生成するものであるが詳細は後述する。

【００２６】

グラフィック処理部１１３から出力されたデジタルの映像信号は、映像処理部１２０に供給される。この映像処理部１２０は、入力されたデジタルの映像信号を、映像表示器１２１で表示可能なフォーマットの映像信号に変換した後、映像表示器１２１に出力して映像表示させると共に、出力端子１２２を介して外部に導出させる。

【００２７】

また、音声処理部１１４は、入力されたデジタルの音声信号を、スピーカ１２３で再生可能なフォーマットのアナログ音声信号に変換した後、スピーカ１２３に出力して音声再生させるとともに、出力端子１２４を介して外部に導出させる。

【００２８】

ここで、このデジタルテレビジョン放送受信装置１００は、上記した各種の受信動作を含むその全ての動作を制御部１０６によって統括的に制御される。

【００２９】

制御部１０６は、ＣＰＵ（Central Processing Unit）を主体に構成され、このＣＰＵが実行する制御プログラムを格納したＲＯＭ（Read Only Memory）１２５と、このＣＰＵに作業エリアを提供するＲＡＭ（Random Access Memory）１２６と、各種の設定情報及び制御情報等が格納される不揮発性メモリ１２７とを備えている。

【００３０】

制御部１０６には、操作部１２８が接続されると共に、リモートコントローラ１２９から送出される赤外線信号を受ける受光部１３０が接続されている。操作部１２８は、テレビジョン受像機１００の例えば前面キャビネットに設けられた複数の操作スイッチで構成され、リモートコントローラ１２９と共にユーザが操作することで、操作信号を制御部１０６に送り、チャンネル選局を始め、テレビジョン受像機１００の機能の調整あるいは動作の設定を行うことが可能である。

【００３１】

また、制御部１０６には、カードＩ／Ｆ（Interface）１３１を介して、第１のメモリカード１３２が装着可能なカードホルダ１３３が接続されていると共に、カードＩ／Ｆ１３４を介して、第２のメモリカード１３５が装着可能なカードホルダ１３６が接続されている。

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 143 of 398

【００３２】
第１のメモリカード１３２及び第２のメモリカード１３５は、例えばデジタルカメラで撮影された静止画像データ、動画像データ及び音声データが記憶されており、それらメモリカード１３２，１３５がカードホルダ１３３，１３６に装着されることで、制御部１０６はそれらの画像データ及び音声データを読出して、信号処理部１０５に導出する。
【００３３】
第１のメモリカード１３２は、例えばＳＤメモリカードであるかまたはメモリスティックであり、第２のメモリカード１３５は例えばスマートメディアである。ＳＤメモリカードとメモリスティックは外形寸法が同一であるため、カードホルダ１３３を共通に使用することが可能である。
【００３４】
また、制御部１０６は、通信Ｉ／Ｆ１３７を介して第１のＬＡＮ（Local Area Network）端子１３８に接続されている。これにより、制御部１０６は、第１のＬＡＮ端子１３８に接続された図示しない、例えばＬＡＮ対応のＨＤＤ（Hard Disk Drive）等の録画機器と、通信Ｉ／Ｆ１３７を介して情報伝送を行なうことができる。この場合、制御部１０６は、ＤＨＣＰ（Dynamic Host Configuration Protocol）サーバ機能を有し、第１のＬＡＮ端子１３８に接続されたＬＡＮ対応のＨＤＤにＩＰ（Internet Protocol）アドレスを割り当てて制御することになる。
【００３５】
さらに、制御部１０６は、通信Ｉ／Ｆ１３９を介して第２のＬＡＮ端子１４０に接続されている。これにより、制御部１０６は、第２のＬＡＮ端子１４０に接続された図示しない機器と、通信Ｉ／Ｆ１３９を介して情報伝送を行うことができる。
【００３６】
また、制御部１０６は、ＵＳＢ Ｉ／Ｆ１４１を介してＵＳＢ端子１４２に接続されている。これにより、制御部１０６は、ＵＳＢ端子１４２に接続された図示しない機器と、ＵＳＢ Ｉ／Ｆ１４１を介して情報伝送を行なうことができる。
【００３７】
さらに、制御部１０６は、ｉ．Link Ｉ／Ｆ１４３を介してｉ．Link端子１４４に接続されている。これにより、制御部１０６は、ｉ．Link端子１４４に接続された図示しない機器と、ｉ．Link Ｉ／Ｆ１４３を介して情報伝送を行なうことができる。
【００３８】
図２は、リモートコントローラ１２９のキー配置の一例を示す図である。リモートコントローラ１２９は、テレビジョン受像機１００の電源のオンオフを切換える電源キー２０１、チャンネルを切換えたり、数字データを入力するための数字キー２０２、視聴する信号の供給源を、メモリカード１３２，１３５と放送受信信号とで切換える入力切換キー２０３、処理を終了するあるいは前の画面に戻るＥＸＩＴキー２０４、映像表示器１２１の画面に表示される被選択項目にカーソルを移動させるカーソルキー２０５、カーソルを移動させた項目を登録する決定キー２０６と、４色キーを構成する青キー２０７、赤キー２０８、緑キー２０９、黄キー２１０を備えている。
【００３９】
次に、図１に示すテレビジョン受像機１００に搭載された本発明の画像表示装置についてその動作を詳細に説明する。
【００４０】
図１において、第１のメモリカード１３２と、第２のメモリカード１３５がそれぞれ、カードホルダ１３０と１３３に装着されると、制御部１０６は、それを検出して、自動的にメモリカード再生モードを設定する。すなわち、制御部１０６は、ＯＳＤ信号生成部１１９を駆使して、２つのメモリカード１３２，１３５のいずれかを選択するためのメディア選択画面用のＯＳＤ信号を生成して、これをグラフィック処理部１１３から、映像処理部１２０を介して映像表示器１２１に供給してその画面に選択画面を表示させる。
【００４１】

図３に、メディア選択画面の例を示す。画面３０１には、中央部分にメモリカード示すアイコンが模式的に表示されている。左から「ＳＭ」（スマートメディア）３０２、「ＳＤ」（ＳＤメモリカード）３０３、「ＭＳ」（メモリスティック）３０４である。なお、図３では各メモリカードを単にイニシャルで表現しているが、それぞれ設定されているロゴマークを使えば、より理解しやすくなる。

【００４２】

さて、図３においては、「ＭＳ」３０４の全体を複数の水平線で覆っているが、これは表示が暗いことを示しており、カードホルダ１３３には装着されていないことを示している。他の「ＳＭ」３０２、「ＳＤ」３０３は、明るく光っており、カードホルダ１３３，１３６に装着されていることを示している。さらに、「ＳＤ」３０３の周囲が斜線で囲われており、これはここにカーソル３０５が位置していることを示している。

【００４３】

さらに、画面３０１には、現在カーソル３０５が位置するＳＤメモリカードに記録されている画像の種類（静止画か動画か）と数量（ファイル数）が示されている。スチルカメラマーク３０６で静止画を示し、テレビカメラマーク３０７で動画を示しており、図３の例では、静止画が１４枚（ファイル）で動画が２プログラム（ファイル）記録されていることを示している。

【００４４】

この記録内容を示す情報は、メモリカード１３２，１３５がカードホルダ１３３，１３４に装着されてから、最初にカーソル３０５が位置した際に、制御部１０６が、そのメモリカードに記録されているファイル情報を読出して、それに基づいて、ＯＳＤ信号を生成させて表示させるものであり、表示に供される読出した情報は、制御部１０６によって不揮発性メモリ１２７あるいはＲＡＭ１２５に記憶される。

【００４５】

以降同じメモリカードが装着されている状態において、図３に示すメディア選択画面３０１が表示される場合には、不揮発性メモリ１２７あるいはＲＡＭ１２５から、その記録されている画像情報が読出されて表示される。したがって、都度メモリカードから読出すより速く、記録されている画像情報を表示することができるものである。

【００４６】

また、図３の画面３０１の最も下部には、リモートコントローラ１２９のキーに対応したアイコンが表示されるアイコン表示領域３０８が設けられており、図３では、カーソル３０５が位置するメモリカードに記録されている画像の一覧をサムネイルで表示するためのサムネイル表示アイコン３０９と、テレビジョン放送番組の視聴に切換えるための入力切換アイコン３１０が表示されている。

【００４７】

サムネイル表示アイコン３０９は、リモートコントローラ１２９の、矢印で示すカーソルキー２０５の中央に位置する決定キー２０６を操作することで実行されることを示しており、入力切換アイコン３１０は、同じマークが使われていることから、リモートコントローラ１２９の入力切換キー２０３を操作すればよいことを示している。

【００４８】

このアイコン３０９，３１０を表示するためのデータは、予めＲＯＭ１２５に記憶されており、制御部１０６が適宜データを読出してＯＳＤ信号生成部１１９で表示用のＯＳＤ信号に変換するものである。

【００４９】

この図３において、リモートコントローラ１２９の決定キー２０６を操作すると、制御部１０６は、メモリカード１３２からサムネイル情報を読出してこれを信号処理部１０５に送って処理し、さらにグラフィック処理部１１３で、映像表示器１２１の画面に、４列３行で最大計１２枚の静止画のサムネイル画像を表示すべく処理を行う。

【００５０】

さらに、制御部１０６は、不揮発性メモリ１２７あるいはＲＡＭに蓄積したメモリカー

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 145 of 398

ドの記録画像情報を読出して、ＯＳＤ信号生成部１１９を駆使して、表示されているサムネイル画像の一つ（カーソルで選択される）の内容を示す文字情報で構成されるＯＳＤ信号を生成してグラフィック処理部１１３に供給し、さらに、サムネイル画像表示状態で使用可能なリモートコントローラ１２９のキーに対応したロゴマークのデータをＲＯＭ１２５から読出して、表示するためのＯＳＤ信号を生成して、グラフィック処理部１１３に送る。

【００５１】

グラフィック処理部１１３は、信号処理部１０５からのサムネイル画像信号とＯＳＤ信号生成部１１９からのＯＳＤ信号を重畳して、それを映像処理部１２０から映像表示器１２１に送って表示させる。

【００５２】

その結果、図４に示す画面が表示される。画面４０１の中央部に、１２枚のサムネイル画像が表示される。１２枚の画像の内、斜線を付した枠で示すカーソル４０２が位置する画像の具体的な情報がサムネイル画像表示領域の下方に示されている。具体的な情報としては、ここでは、撮影日時、ファイル名、全画像（ファイル）の何番目か、と解像度である。

【００５３】

さらに、画面４０１の最下方に、リモートコントローラ１２９のキーに対応したアイコンの表示領域４０３が設けられ、６個のアイコンが表示されている。最も左のアイコンが決定キー２０６を操作することで、カーソル４０２が位置する画像を単独表示させるためのアイコン４０４である。左から２番目から右から２番目までは、リモートコントローラ１２９の４色キー２０７～２１０に対応したものであり、それぞれ色キーと同じ色の長円形枠の中に機能を示す記号が表示されている。

【００５４】

具体的には、左から２番目は、青色の長円形枠の中に全ての静止画像を順次自動的に切換えて表示する、いわゆるスライドショーを示す記号が示されたスライドショーアイコン４０５で、次が、赤色の長円形枠の中に画像の表示角度を切換える記号が示された表示角度切換アイコン４０６である。

【００５５】

さらに、次が緑色の長円形枠の中にスクリーンセーバの時間を設定する記号が示されたスクリーンセーバ時間設定アイコン４０７であり、次が、黄色の長円形枠の中にテレビカメラ記号が示された、画面を動画のサムネイル画像表示に切換えるための動画サムネイル画像表示アイコン４０８である。これらは、リモートコントローラ１２９の対応する色キーを操作するとその機能が実行される。

【００５６】

なお、図では、青色、赤色、緑色、黄色のアイコンにそれぞれＢ、Ｒ、Ｇ、Ｙを付して、それらが色情報を伴ったアイコンであることを示している。

【００５７】

最も右に表示されているのは、前の画面であるメディア選択画面（図３）に戻るのには、ＥＸＩＴキー２０４を操作すればよいことを示すＥＸＩＴアイコン４０９である。

【００５８】

さらに画面４０１の右上には、表示されている画像データが記憶されているメモリカードの種類を示す記号（実際にはロゴマーク）４１０が示されており、図４では、ＳＤメモリカードであることを示している。

【００５９】

図４の画面において、リモートコントローラ１２９の決定キー２０６を操作すると、カーソル４０２が存在した画像の単独表示画面になる。すなわち、制御部１０６は、メモリカードからカーソル４０２が存在した画像のデータを読出して、信号処理部１０５に送り、復号等の処理を施して非圧縮のデジタル映像信号に変換して、グラフィック処理部１１３に送る。

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 146 of 398

【００６０】
さらに、制御部１０６は、今まで表示されていた画像に関する情報をそのまま継続して表示させると共に、アイコン表示領域に新たなアイコンを表示させるべく、ＲＯＭ１２５からデータを読み出してＯＳＤ信号生成部１１９でＯＳＤ信号に変換してグラフィック処理部１１３に送る。
【００６１】
その結果、図５に示す画像が映像表示器１２１に表示される。図５において、画面５０１には、図４のサムネイル画像から選択された画像が単独で表示され、その下部分に表示されている画像の情報が表示され、最も下部のアイコン表示領域５０２には、リモートコントローラ１２９のキーに対応するアイコンが表示されている。
【００６２】
すなわち、画面上最も左には、図４のサムネイル画像で、現在単独表示されている画像の一つ前の画像に切換表示する画像戻り選択アイコン５０３が表示され、続いて同様に一つ後ろの画像に切換表示する画像進み選択アイコン５０４が表示されている。これらアイコン５０３，５０４はリモートコントローラ１２９のカーソルキー２０５のそれぞれ白抜き矢印方向キーを操作することで実行されることを示している。
【００６３】
また、次の４個のアイコンは、リモートコントローラ１２９の色キーに対応したもので、青色はスライドショーアイコン５０５で、次の赤色は表示角度切換アイコン５０６である。また、緑色が拡大表示アイコン５０７であり、緑キー２０９を操作すると表示画像が拡大され、黄色が情報表示切換アイコン５０８であり、黄色キー２１０を一度操作すると、撮影日時、ファイル名等の情報の表示が停止されて画面から消え、さらに操作するとアイコン表示領域５０２も画面５０１から消えて、静止画像のみの表示とすることが可能である。黄色キー２１０をもう一度操作すると図５の状態に戻る。
【００６４】
最後に、最も右に表示されているアイコンは、ＥＸＩＴアイコン５０９であり、この場合、リモートコントローラ１２９のＥＸＩＴキー２０４を操作すると、サムネイル画像表示、すなわち図４の表示状態に戻ることを示している。
【００６５】
以上、まず、図１に示すカードホルダ１３３，１３６の両方にメモリカード１３２，１３５が装着されてから、メディア選択画面（図３）が表示され、さらにサムネイル画像表示画面（図４）を経て単独画像表示画面（図５）までの静止画像を表示させるための基本的な操作手順について説明したがテレビジョン放送番組視聴状態から、リモートコントローラ１２９の入力切換キー２０３を操作して、図３に示すメディア選択画面を表示させた場合の動作も、不揮発性メモリ１２７あるいはＲＡＭ１２５への、メモリカードの記憶画像情報の書込み処理を除いて同じである。
【００６６】
また、メモリカードがいずれかの種類１枚しか装着されない場合は、図３に示すメディア選択画面は表示されずに、図４に示すサムネイル表示画面がいきなり表示されるようになる。
【００６７】
さらに、既に１枚のメモリカードが装着されている状態から、２枚目のメモリカードを装着した場合には、２枚目のメモリカードのサムネイル画像が表示される。
【００６８】
また、図３の画面からリモートコントローラ１２９の決定キー２０６を操作した場合、静止画のサムネイル画像が表示されるとしたが、これは、動画のサムネイル画像が表示されるようにしてもよく、また、静止画像が全く記録されていない場合には、当然ながら、動画のサムネイル画像がいきなり表示されるようになるものである。
【００６９】
以上説明した処理の部分を、図６、図７に示すフローチャートに基づき改めて説明する

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 147 of 398

。

【００７０】

図６は、メモリカードに記録されている画像に関する情報を表示するための処理を説明するために示すフローチャートであり、ステップＳ６０１で開始され、ステップＳ６０２で、複数のメモリカードが装着されたか否かの判定がなされ、複数のメモリカードが装着されたと判定されたら、ステップＳ６０３でメディア選択画面を表示させて、ステップＳ６０４に進む。

【００７１】

ステップＳ６０４では、カーソルが移動したメモリカードから記録されている画像に関するデータを読出して不揮発性メモリ１２７あるいはＲＡＭ１２５に記憶し、次いでステップＳ６０５によって、記憶したデータに基づいて静止画と動画のファイル数を表示する。

【００７２】

次いで、ステップＳ６０６でサムネイル画像表示の要求があったか否かの判定が行われ、あった場合にはステップＳ６０７に進んでサムネイル画像表示を行うと共に、それによって選択される単一画面表示のための処理を実行する。

【００７３】

次いで、ステップＳ６０８でテレビジョン番組の視聴要求があったか否かの判定がなされ、要求があった場合にはステップＳ６０９で番組の視聴を実行する。すなわち、制御部１０６が、信号処理部１０５を制御して放送信号を受信して得た映像信号をグラフィック処理部１１３に送り、かつ受信した音声信号を音声処理部１１４に送るように切換える。

【００７４】

次のステップＳ６１０でメディア再生画像表示要求があったか否かの判定がなされ、あった場合には、ステップＳ６１１でメディア選択画面を表示させ、さらにステップＳ６１２で、メディア選択画面でカーソルが位置しているメモリカードの、不揮発性メモリ１２７あるいはＲＡＭ１２５に記憶されている記録画像ファイルに関する情報を読出して、静止画／動画のファイル数を表示させる。

【００７５】

以上のような処理によって、メモリカードに記憶されている画像の種類及びそのファイルの数を迅速に表示させることができるようになるものである。

【００７６】

さらに、図７は、装着されているメモリカードの数に対応した画面表示処理を実行するためのフローチャートである。

【００７７】

図７において、ステップＳ７０１で開始され、ステップＳ７０２でメディア再生指示があったか否かの判定がなされる。再生指示があったと判定された場合には、ステップＳ７０３で２種類のメモリカードが装着されているか否かの判定がなされ、２種類装着されている場合には、ステップＳ７０４に進む。

【００７８】

ステップＳ７０４では、メディア（メモリカード）選択画面を表示させ、次いでステップＳ７０５でカーソルが移動しているメモリカードに記録されている画像を静止画と動画に分けてそのファイル数を表示する。

【００７９】

次いで、ステップＳ７０６でメモリカードが選択されたか否かの判定がなされ、選択された場合に、ステップＳ７０７で選択されたメモリカードのファイルリストをサムネイル画像で表示する。

【００８０】

次にステップＳ７０８で単一画像表示あるいはスライドショーの要求があったか否かの判定がなされ、あった場合には、ステップＳ７０９で単一画像表示あるいはスライドショーを実行する。

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 148 of 398

【００８１】
次に、ステップＳ７１０でサムネイル表示の要求があったか否かの判定がなされ、あった場合には、ステップＳ７０４に戻る。また、サムネイル表示の要求がなかった場合には、ステップＳ７１１でカード再生表示終了の指示があったか否かの判定がなされ、あった場合にはステップＳ７１２で処理を終了する。
【００８２】
また、ステップＳ７０３で、メモリカードが１種類しか装着されていないと判定された場合には、ステップＳ７１３で、装着されているメモリカードのファイルリストをサムネイル表示する。
【００８３】
次いで、ステップＳ７１４で、単一画像表示あるいはスライドショー実行の要求があったか否かの判定がなされ、あった場合には、ステップＳ７１５で単一画像表示あるいはスライドショーを実行する。
【００８４】
次にステップＳ７１６でサムネイル表示の要求があったか否かの判定がなされ、あった場合には、ステップＳ７１３に戻る。また、サムネイル表示の要求がなかった場合には、ステップＳ７１７でカード再生表示終了の指示があったか否かの判定がなされ、あった場合にはステップＳ７１２で処理を終了する。
【００８５】
以上、説明したように、メモリカードの装着枚数（種類）に応じて処理を変えているので、メモリカードが１枚しか装着されていない場合には、必要のない画面（メディア選択画面）をスキップして処理できるため、処理が簡潔になって操作を簡単に行うことができるようになるものである。
【００８６】
次に、さらに本発明の画像表示装置における画像表示機能の細部について説明する。図５に示す状態は、サムネイル画像表示状態から選択された単一の画像表示状態を示すものであり、この状態から、例えば、リモートコントローラ１２９の黄色キー２１０を操作すると、制御部１０６は、ＯＳＤ信号処理部１１９あるいはグラフィック処理部１１３を制御して、図８に示すように、表示されている画像に関する情報の表示を停止し、画面８０１には、単一の画像と、アイコン表示領域８０２でのアイコンが表示されるようになる。
【００８７】
さらにリモートコントローラ１２９の黄色キー２１０を操作すると、制御部１０６は、アイコンの表示も停止するように制御し、それによって図９に示すように、画面９０１には、画像のみが表示されるようになり、さらにもう一度黄色キーを操作すると、図５での表示形態になる。
【００８８】
図５の状態から、例えばスライドショーを実行させる場合には、リモートコントローラ１２９の青色キー２０７を操作する。それによって、制御部１０６は、メモリカードに記録されている画像データを順次読出して、信号処理部１０５に送って、非圧縮のデジタル画像データに変換して、グラフィック処理部１１３に導出する。
【００８９】
グラフィック処理部１１３では、ＯＳＤ信号生成部１１９から表示用に供給される画像に関する情報信号を画像データに重畳して、映像表示器１２１で表示すべく出力する。
【００９０】
なお、このとき、表示される画像に関する情報の表示を停止する図８あるいは図９に示す状態では、制御部１０６は、不揮発性メモリ１２７あるいはＲＡＭ１２５に記憶されている画面表示される画像に関する情報を読出して、所定時間強制的に表示させるように動作する。
【００９１】
また、このように、表示される画像に関する情報が表示されない状況で、スライドショ

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 149 of 398

ーに限らず、ユーザが手動で表示画像を切換える場合においても、画像に関する情報を同様に強制的に所定時間表示させるように構成することが好ましい。

【００９２】

このとき、表示させるタイミングとしては新たな画像に切換わってからであってもよいし、画像が切換わる前でもよいし、あるいは、今まで表示していた画像と新たな画像にそれぞれ跨って表示されるように構成してもよいし、さらには、画像に重畳されることなく、画像の切換わり目に挿入する形態で表示されるように構成することもできる。

【００９３】

図１０は、画像に関する情報が表示されていない状態で、表示画像を切換えた際に、画像に関する情報が表示される状態を示すものであり、画像が切換わった画面１００１に、その画像に関する情報１００２を表示している状態が示されている。

【００９４】

図１１は、以上説明した画像に関する情報の表示を停止している状況における、表示画像切換時の処理を改めて説明するためのフローチャートである。図１１において、ステップＳ１１０１で開始され、ステップＳ１１０２でメモリカード（メディア）の画像表示要求があったか否かの判定がなされ、あったと判定された場合に、ステップＳ１１０３でメディア選択画面から静止画リストをサムネイル表示する。

【００９５】

次いで、ステップＳ１１０４でサムネイル表示された画像の中から、単一表示したい画像を選択して、画像に関する情報（インフォメーション）と共に表示する。

【００９６】

次に、ステップＳ１１０５で、インフォメーションの表示停止指示があったか否かが判定され、あったと判定された場合には、ステップＳ１１０６で画像のみ（あるいは画像とアイコン）を表示する。

【００９７】

次に、ステップＳ１１０７で、次画像の表示指示があったか否かの判定がなされ、あったと判定された場合には、ステップＳ１１０８で次画像を表示し、さらにステップＳ１１０９で、その新たに表示された画像のインフォメーションを所定時間表示する。なお、このステップＳ１１０８とＳ１１０９の処理の順序は、前に説明したように逆にすることも可能である。

【００９８】

次に、ステップＳ１１１０で、サムネイル画像表示要求があったか否かの判定が行われ、あったと判定された場合には、ステップＳ１１０３に戻る。また、なかったと判定された場合には、ステップＳ１１１１でメモリカード再生終了の指示があったか否かの判定が行われ、あった場合には、ステップＳ１１１２で処理を終了し、なかったと判定された場合には、ステップＳ１１０７に戻る。

【００９９】

また、ステップＳ１１０５でインフォメーションの表示停止指示がなかったと判定された場合には、ステップＳ１１１３に進んで、次画像の表示指示があったか否かの判定がなされ、あったと判定された場合には、ステップＳ１１１４で、指定された画像をインフォメーション付きで表示する。

【０１００】

次に、ステップＳ１１１５で、サムネイル画像表示要求があったか否かの判定が行われ、あったと判定された場合には、ステップＳ１１０３に戻る。また、なかったと判定された場合には、ステップＳ１１１６でメモリカード再生終了の指示があったか否かの判定が行われ、あった場合には、ステップＳ１１１２で処理を終了し、なかったと判定された場合には、ステップＳ１１１３に戻る。

【０１０１】

以上説明したように、表示画像に関する情報（インフォメーション）の表示を停止している状態において、表示画像を自動であるいは手動で切換える場合に、次に表示される画

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 150 of 398

像のインフォメーションを強制的に所定時間表示するように構成することで、表示された画像の内容を的確に認識することが可能になり、メモリカードに記録された多くの画像の中から、目的の画像を素早く選択することができるようになるものである。

【０１０２】

次に、画像の表示角度を変更する処理について説明する。図４に示す画面において、リモートコントローラ１２９の赤色キー２０８が操作されたとすると、カーソル４０２が位置する画像の表示角度が切換えられる。すなわち、制御部１０６は、グラフィック処理部１１３あるいは映像処理部１２０を制御して、サムネイル画像の内、選択された画像の表示角度を切換える処理を実行させる。さらにこのとき、制御部１０６は、その画像の表示角度が変更されたという情報を不揮発性メモリ１２７あるいはＲＡＭ１２５に記憶させる。

【０１０３】

画像の表示角度を変更する処理が実行された結果、図１２に示すように、その画像が９０度反時計方向に回転した状態で表示されるようになる。

【０１０４】

図１２に示す状態から、表示角度が変えられた画像の単独表示に切換えるには、画面１２０１のアイコン表示領域１２０２の、単一画像表示切換アイコン１２０３に対応するリモートコントローラ１２９の決定キー２０６を操作する。

【０１０５】

それによって、図１３に示すように、図１２で表示角度が切換えられた画像が、同様に表示角度が切換えられた状態で単独表示されるようになる。

【０１０６】

この実施の形態によれば、画像の表示角度を変更したという情報が、不揮発性メモリ１２７あるいはＲＡＭに記憶されるため、例えば、一旦、テレビジョン番組の視聴に切換えてから、再びメモリカードの再生画像を視聴するように切換えた場合にも、メモリから表示角度を切換えた画像の情報が読込まれるため、図１２あるいは図１３に示す状態に復帰させることが可能である。

【０１０７】

図１４は、以上説明した、表示角度切換処理を改めて説明するためのフローチャートである。図１４において、ステップＳ１４０１で開始され、ステップＳ１４０２でメモリカードの画像表示要求があったか否かの判定がなされ、あったと判定された場合には、ステップＳ１４０３で静止画リストがサムネイル画像で表示される。

【０１０８】

次いで、ステップＳ１４０４で、表示された静止画リストに基づき、サムネイル画像表示あるいは単一画像表示の処理が実行される。次に、ステップＳ１４０５で画像の表示角度変更指示があったか否かの判定がなされ、あったと判定された場合には、ステップＳ１４０６で変更データを不揮発性メモリ１２７あるいはＲＡＭ１２５に記憶し、次いでステップＳ１４０７でデータに基づく角度で画像を表示する。ステップＳ１４０５で表示角度変更指示がなかったと判定された場合には、ステップＳ１４０４に戻る。

【０１０９】

次いで、ステップＳ１４０８でメモリカード以外の画像表示要求があったか否かの判定が行われ、あったと判定された場合には、ステップＳ１４０９で要求された画像を表示する。なかったと判定された場合には、ステップＳ１４０４に戻る。

【０１１０】

次いで、ステップＳ１４１０でメモリカードの画像表示要求があったか否かの判定がなされ、あったと判定された場合にはステップＳ１４１１でメモリに記憶されたデータに基づく表示角度で、メモリカードの画像を表示する。また、なかったと判定された場合にはステップＳ１４０９に戻る。

【０１１１】

次いで、ステップＳ１４１２でメモリカード再生終了の指示があったか否かの判定がな

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 151 of 398

され、あったと判定された場合にはステップＳ１４１３で処理を終了し、なかったと判定された場合にはステップＳ１４０４に戻る。

【０１１２】

以上説明した、実施の形態によれば、画像の表示角度を変更した場合に、そのデータがメモリに記憶されるために、一旦メモリカード再生画像以外の例えば、テレビジョン放送番組を視聴してから、再びメモリカード再生画像を表示するような場合においても、表示角度を変更した画像が、記憶されたデータに基づいて、表示角度を変更された状態で表示されるため、改めて、画像の表示角度を変更する等という手間が省けるようになるものである。

【０１１３】

次にスライドショーの表示時間間隔を変更する処理について説明する。例えば図８に示す画面において、リモートコントローラ１２９の青色キー２０７を操作すると、制御部１０６の制御の下、スライドショーが開始されるが、その際の画面を図１５に示す。

【０１１４】

図１５において、画面１５０１には、順次画像が切換られて表示され、同時にその表示画像に関する情報（インフォメーション）も表示される。さらにアイコン表示領域１５０２には、リモートコントローラ１２９の色キーに対応したアイコンが表示され、赤色キーに対応したスライドショーの画像の切換処理を一時停止させるポーズアイコン１５０３と、緑色キーに対応したスライドショーの表示時間間隔を設定するための表示間隔設定アイコン１５０４が表示されている。

【０１１５】

図１５に示す状態において、リモートコントローラ１２の緑色キー２０９を操作すると、図１６に示すように、画面１６０１にスライドショーの時間間隔を設定するためのウィンドウ１６０２が表示される。ウィンドウ１６０２には、６通りの設定時間が表示されており、リモートコントローラ１２９のカーソルキー２０５で、斜線で示すカーソル１６０３を設定したい時間の表示枠に移動させて、決定キー２０６を操作することで、スライドショーの表示間隔を変更することが可能である。また、リモートコントローラ１２９のＥＸＩＴキー２０４を操作することで、時間間隔設定のためのウィンドウ１６０２の表示を停止させることができるものである。

【０１１６】

以上、説明したスライドショーの時間間隔を設定する処理を図１７のフローチャートで改めて説明する。

【０１１７】

図１７において、ステップＳ１７０１で開始され、ステップＳ１７０２でスライドショーの実行要求があったか否かの判定がなされ、要求があったと判定された場合には、ステップＳ１７０３で、画像データをメモリカードから読出し、メモリに記憶されたデータに基づく時間間隔で、連続的に順次切換表示する。

【０１１８】

次いで、ステップＳ１７０４で表示時間間隔の変更要求があったか否かの判定がなされ、要求があったと判定されたら、ステップＳ１７０５で時間間隔設定画面を表示し、ステップＳ１７０６で時間間隔を変更してメモリに記憶されたデータを更新して、ステップＳ１７０３に戻って、新たな時間間隔でのスライドショーを実行する。

【０１１９】

また、ステップＳ１７０４で表示時間間隔の変更要求がなかったと判定された場合には、ステップＳ１７０７でスライドショーの終了指示があったか否かの判定がなされ、あった場合にはステップＳ１７０８で処理を終了し、終了指示がなかった場合には、ステップＳ１７０３に戻る。

【０１２０】

以上説明した、実施の態様においては、スライドショーを実行しいている最中に、時間間隔を変更するための画面を呼び出して、画面に基づいて時間間隔を変更することが可能

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 152 of 398

で、変更した時間間隔でのスライドショーを直ちに再開させることができるため、操作が簡単になるという効果を有する。

【０１２１】

次に、拡大表示の処理について説明する。例えば図８に示す画面において、リモートコントローラ１２９の緑色キー２０９を操作することによって、画像が拡大されて表示されるものであるが、この実施の形態では、まず画像の全体が完全に表示されるモードに設定される。

【０１２２】

すなわち、例えば図１８に示すように、図８の表示状態に対して若干縮小されて表示されるようになる。さらに図１８の表示状態において、引続いてリモートコントローラ１２９の緑色キー２０９を操作すると、図１９に示すように２倍に拡大された画像が表示されるようになる。

【０１２３】

図１９では、表示画面１９０１の右上に２倍表示であることを示す表示１９０２が示されており、さらに画面の上下左右の端に、三角マーク１９０３が表示され、マーク１９０３の外側に、さらに画像が続いていることを示している。なお、図１８に示す全体を示す画像は、所定時間表示されてから、自動的に図１９に示す２倍表示画像に切換えられるように構成してもよい。

【０１２４】

図１９に示す状態から、さらにリモートコントローラ１２９の緑色キー２０９を操作すると、図２０に示すように例えば４倍に拡大された画像が表示されるようになる。図２０の画面２００１においては、その右上に、４倍表示であることを示す表示２００２がされており、画面の上下左右には図１９と同様に三角マーク２００３が表示されている。

【０１２５】

なお、表示画面を拡大する処理においては、画面の拡大制御と、表示画像に関する情報（インフォメーション）の表示制御の２通りの制御が可能であるため、図１９のアイコン表示領域１９０４のリモートコントローラ１２９の色キーに対応するアイコンも、緑色の拡大アイコン１９０５と、黄色のインフォメーション表示切換アイコン１９０６が表示されており、青色と赤色の長円形の枠内には何ら記号が表示されておらず、図１９の画面においては、リモートコントローラ１２９の青色キー２０７と赤色キー２０８は、何ら機能をもたないということを示している。

【０１２６】

さて、以上説明した、画像拡大処理について、図２１のフローチャートに基づいて改めて説明する。図２１において、ステップＳ２１０１で開始され、ステップＳ２１０２で、静止画像の単一表示が実行される。

【０１２７】

次いでステップＳ２１０３で拡大表示要求があったか否かの判定がなされ、あったと判定された場合には、ステップＳ２１０４で静止画の全体像を表示し、次いでステップＳ２１０５で２倍画像を表示する。

【０１２８】

次いで、ステップＳ２１０６で拡大表示要求があったか否かの判定がなされ、要求があったと判定された場合には、ステップＳ２１０７で４倍画像を表示する。

【０１２９】

次いで、ステップＳ２１０８で再び拡大表示要求があったか否かの判定がなされ、あったと判定された場合には、ステップＳ２１０７に戻って４倍画像の表示を続ける。すなわち、この実施の形態では、４倍表示を最大とするものである。

【０１３０】

ステップＳ２１０８で拡大表示要求がなかったと判定された場合には、ステップＳ２１０９で、拡大表示終了指示があったか否かの判定がなされ、あったと判定された場合には、ステップＳ２１１０で、標準画像表示に切換えてステップＳ２１１１で処理を終了する

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 153 of 398

。

【０１３１】

また、ステップＳ２１０６で拡大表示要求がなかったと判定された場合には、ステップＳ２１１２で拡大表示終了指示があったか否かの判定がなされ、あった場合にはステップＳ２１１０に進んで標準画像の表示に切換えて処理を終了し、拡大表示終了指示がなかったと判定された場合には、ステップＳ２１０５に戻って２倍画像の表示を継続する。

【０１３２】

なお、以上説明したフローの内、ステップＳ２１０４とステップＳ２１０５は、ステップＳ２１０３の判定処理に連動して自動的に処理されるものとしたが、ステップＳ２１０４で処理を一旦中断して、さらに拡大表示要求があった場合に、ステップＳ２１０５を実行するように構成してもよい。

【０１３３】

以上説明した画像の拡大表示処理においては、一旦画像の全体像を表示するステップを設けるようにしたので、原画像に対して、どのように拡大されているかをユーザが確実に認識することが可能となるため、操作性が向上するという効果を奏する。

【０１３４】

さらに、表示画像を移動する処理について説明する。例えば図１９に示す２倍画像表示状態において、リモートコントローラ１２９のカーソルキー２０５を操作することで画像の表示位置を変更できるように構成されている。

【０１３５】

移動が可能か否かについては、画面の上下左右に表示された三角マーク１９０３が目安となり、これが表示されていれば、その方向には移動可能であるが、表示が消えた場合には、画像の端まで移動されたことを示している。

【０１３６】

図２２に示すフローチャートを参照してその処理について、改めて説明する。図２２において、ステップＳ２２で開始され、ステップＳ２２０２で、拡大表示要求があったか否かの判定がなされ、あったと判定された場合には、ステップＳ２２０３で拡大画像を上下左右マークと共に表示する。

【０１３７】

次いで、ステップＳ２２０４において、表示位置の変更要求があったか否かの判定がなされ、要求があったと判定された場合には、ステップＳ２０５において、表示位置を変更して４つのマークと共に表示する。

【０１３８】

次いで、ステップＳ２２０６において表示が端に達したか否かの判定がなされ、達していないと判定された場合には、ステップＳ２２０４に戻る。

【０１３９】

表示が端に達したと判定された場合には、ステップＳ２２０７で端に達した方向のマークの表示を停止し、次いでステップＳ２２０８で表示位置の復帰要求があったか否かの判定がなされ、あったと判定された場合には、ステップＳ２０３に戻る。また、なかったと判定された場合には、ステップＳ２２０９で拡大表示終了指示があったか否かの判定がなされ、あったと判定された場合には、ステップＳ２２１０で処理を終了し、なかったと判定された場合にはステップＳ２２０７に戻る。

【０１４０】

なお、ステップＳ２２０４で、表示位置変更要求がなかったと判定された場合には、ステップＳ２２１１に進んで、拡大表示終了指示があったか否かの判定を行い、あった場合には処理を終了し、なかった場合にはステップＳ２２０４に戻る。

【０１４１】

以上説明した実施の形態によれば、画像を移動させた際に、端まできたら、その方向のマークの表示を停止して表示しないように構成したので、ユーザが画像の移動状況を的確に判断することができ、余計な操作をしないで済むので、これも操作性の向上に貢献する

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 154 of 398

ものである。

【０１４２】

以上の説明では、もっぱら静止画像を表示する場場合について、説明したが、次に動画像の表示例について説明する。なお、動画像の表示も基本的には静止画像の表示と変わるところはないが、細部で異なる部分もありそれを中心に説明する。

【０１４３】

図４に示すように、サムネイル画像の表示状態において、リモートコントローラ１２９の黄色キー２１０を操作すると、制御部１０６は、メモリカードから動画像ファイルのサムネイル情報を読込んで、信号処理部１０５に送り、処理を施してグラフィック処理部１１３に出力させる。また、その動画像の情報を不揮発性メモリ１２７あるいはＲＡＭ１２６から読出してＯＳＤ信号生成部１１９に供給すると共に、アイコンに関するデータをＲＯＭ１２５から読出してＯＳＤ信号生成部１１９に供給してＯＳＤ信号を生成させてグラフィック処理部１１３に導出する。

【０１４４】

グラフィック処理部１１３では、それら信号をミックスして映像処理部１２０を介して映像表示器１２１に送って表示させる。それによって、図２３に示すように動画像のサムネイル表示が実現する。

【０１４５】

図２３において、画面２３０１には、その右上にメモリカードの種類を示す記号（実際にはロゴマーク）２３０２が表示され、画面中央には、静止画の場合と同様に、１２個の画像がサムネイル表示されている。

【０１４６】

さらに、画像が表示されている領域の下部には、斜線を付した枠で示すカーソル２３０３で囲まれた画像の情報が表示されている。この情報も、基本的には、静止画の場合と同様であり、撮影日時とファイルの名称と、カーソル２３０３が位置する画像が全体の何番目の画像であるかという情報と、解像度が表示されている。

【０１４７】

また、動画像には、音声情報が付加されることもあり、音声が付加されているか否かを音符記号２３０４で表示しており、図２３の例では、音声情報が付加された動画像ファイルということになる。なお、音楽情報が付加されていない場合には、例えば音符マーク２３０４に斜線を引く等の処理でそれを表現することができる。

【０１４８】

さらに、図２３において、アイコン表示領域２３０５には、単一表示に切換えて動画の再生を開始するためのアイコン２３０６と、動画像をスクリーンセーバの画像として利用する際の、表示時間を設定するためのスクリーンセーバ設定アイコン２３０７と、静止画のサムネイル表示に切換えるための静止画サムネイル表示切換アイコン２３０８と、表示画面を戻すためのＥＸＩＴアイコン２３０９が表示されている。

【０１４９】

図２３において、リモートコントローラ１２９の決定キー２０６を操作すると、制御部１０６が、カーソル２３０３が位置するサムネイル画像の実際の動画データをメモリカードから読出して、信号処理部１０５に供給して処理をさせて、グラフィック処理部１１３、映像処理部１２０を介して映像表示器１２１で表示させる。

【０１５０】

図２４は動画が表示されている例を示すもので、画面２４０１には、中央に動画像が表示されている。また、画面上部に再生経過時間をアナログ的に示す表示部２４０２が設けられており、動画像の下部には、表示されている画像の情報が表示されており、さらに最下部にアイコン表示領域２４０３が形成されている。

【０１５１】

アイコン表示領域２４０３には、表示させる動画像を、サムネイル画像で一つ前のものかあるいは一つ後のものに切換えるためのアイコン２４０４，２４０５と、動画の再生を

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 155 of 398

一時停止（ポーズ）するためのアイコン２４０６と、リモートコントローラ１２９の色キーに対応した、青色の早戻しアイコン２４０７と、赤色の早送りアイコン２４０８と、緑色の拡大アイコン２４０９と、黄色のインフォメーション表示制御アイコン２４１０が設けられ、さらにサムネイル表示に戻すためのＥＸＩＴアイコン２４１１が設けられている。それらアイコンを操作することで、種々の機能を実行させることができものである。

【０１５２】

以上説明したように、本発明の画像表示装置によれば、画像と、その画像に関連する撮影日時、ファイル名等のインフォメーションを一緒の画面に表示し、さらにその表示画面において、操作可能な機能をアイコンでリモートコントローラのキーと関連付けて表示するようにしたので、ユーザにとって、操作し易い装置を提供することができるものである。

【図面の簡単な説明】

【０１５３】

【図１】この発明の画像表示装置を搭載するテレビジョン受像機の構成を示す回路ブロック図。

【図２】図１の装置に適用されるリモートコントローラのキー配列の例を示す構成図。

【図３】本発明の画像表示装置におけるメディア選択画面の一実施の形態を示す図。

【図４】本発明の画像表示装置における静止画サムネイル表示画面の一実施の形態を示す図。

【図５】図４に示す画面で選択された静止画を単独で画面表示する一実施の形態を示す図。

【図６】メディア選択画面で表示される画像関連情報の処理を説明するためのフローチャート。

【図７】メモリカードの装着数によって異なる画像を表示するための処理を説明するためのフローチャート。

【図８】表示画像に関連する情報の表示を停止させた際の画面構成を説明するための図。

【図９】表示画像に関連する情報と、アイコンの表示を停止させた際の画面構成を説明するための図。

【図１０】表示画像に関連する情報の表示を停止させた状態で表示画像を切換えた際の画面表示を説明するための図。

【図１１】図１０に示す画像表示処理を説明するためのフローチャート。

【図１２】サムネイル画像で、画像の表示角度を変更した際の表示例を説明するための図。

【図１３】単独表示画像の表示角度を変更した際の表示例を説明するための図。

【図１４】図１２及び図１３に示す画像表示のための処理を説明するためのフローチャート。

【図１５】スライドショー表示の例を説明するための図。

【図１６】スライドショーにおける画像表示の時間間隔を変更する画面の例を説明するための図。

【図１７】スライドショーの画像表示の時間間隔を変更する処理を説明するためのフローチャート。

【図１８】画像拡大表示の過程を説明するための図。

【図１９】２倍拡大画面の表示例を示す図。

【図２０】４倍拡大画面の表示例を示す図。

【図２１】画像拡大表示の処理を説明するためのフローチャート

【図２２】画像移動表示処理を説明するためのフローチャート

【図２３】動画のサムネイル表示画像の例を示す図。

【図２４】動画像の単独表示例を説明するための図。

【符号の説明】

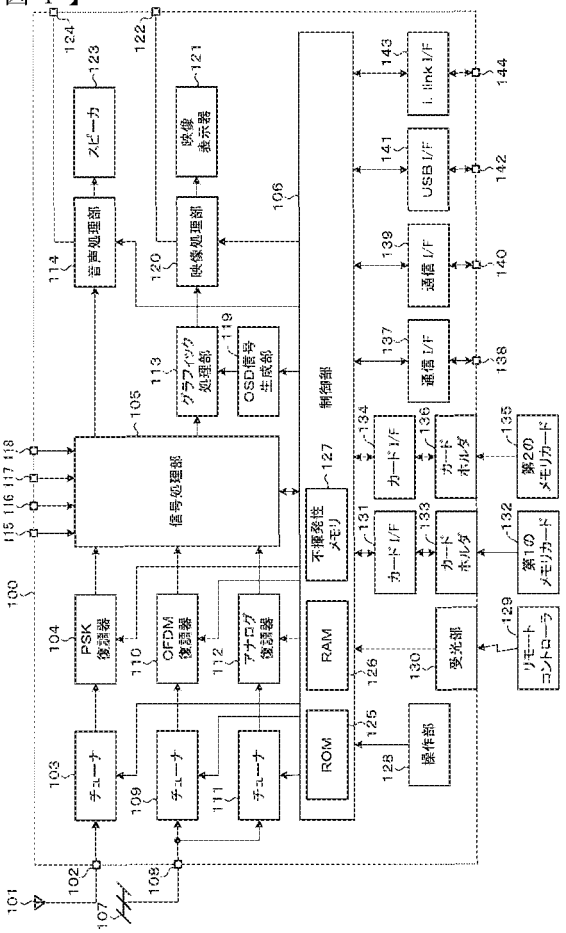
【０１５４】

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 156 of 398

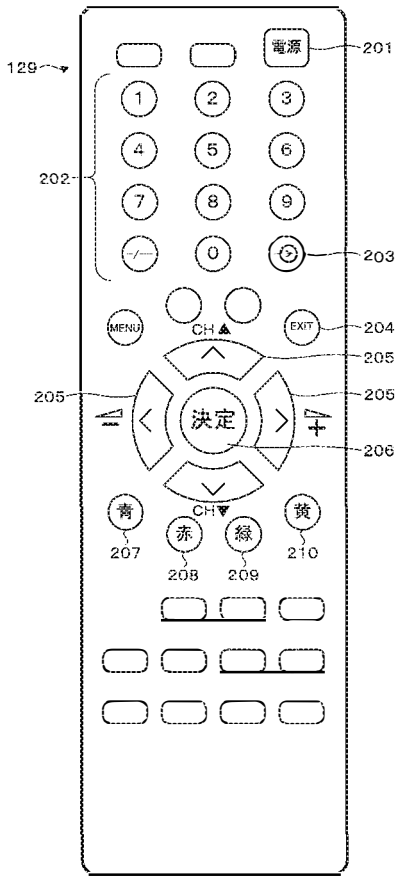
１００…テレビジョン受像機
１０１…衛星放送受信アンテナ
１０２…入力端子
１０３…デジタル衛星放送受信用チューナ
１０４…ＰＳＫ復調器
１０５…信号処理部
１０６…制御部
１０７…地上放送受信アンテナ
１０８…入力端子
１０９…地上波デジタル放送受信用チューナ
１１０…ＯＦＤＭ復調器
１１１…地上波アナログ放送受信用チューナ
１１２…アナログ復調器
１１３…グラフィック処理部
１１４…音声処理部
１１５，１１６，１１７，１１８…外部入力端子
１１９…ＯＳＤ信号生成部
１２０…映像処理部
１２１…映像表示器
１２３…スピーカ
１２５…ＲＯＭ
１２６…ＲＡＭ
１２７…不揮発性メモリ
１２８…操作部
１２９…リモートコントローラ
１３０…受光部
１３１，１３４…カードＩ／Ｆ
１３２，１３５…メモリカード
１３３，１３６…カードホルダ
１３７，１３９…通信インターフェース
１３８，１４０…ＬＡＮ端子
１４１…ＵＳＢ　Ｉ／Ｆ
１４２…ＵＳＢ端子
１４３…ｉ．ｌｉｎｋ　Ｉ／Ｆ
１４４…ｉ．ｌｉｎｋ端子
グラフィック処理部、１４５…音声処理部、２１４～２１７…入力端子、

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 157 of 398

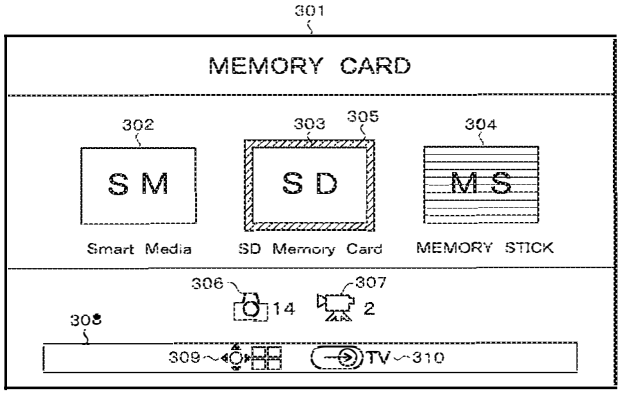
【図１】


スピーカ
映像表示器
音声処理部
映像処理部
グラフィック処理部
OSD信号生成部
制御部
信号処理部
不揮発性メモリ
PSK復調器
OFDM復調器
アナログ復調器
RAM
ROM
受光部
操作部
チューナ
チューナ
チューナ
i. link I/F
USB I/F
通信 I/F
通信 I/F
カード I/F
カード I/F
カードホルダ
カードホルダ
第2のメモリカード
第1のメモリカード
リモートコントローラ

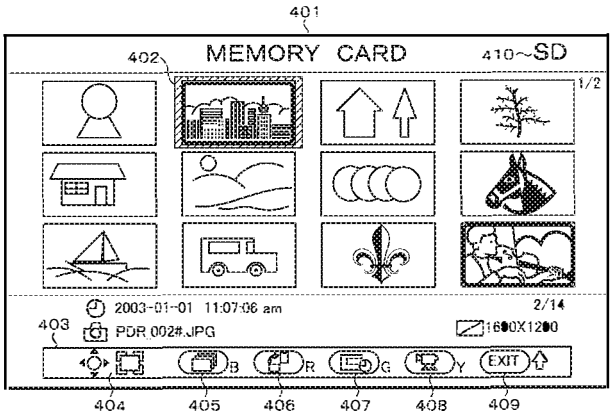
【図２】


電源
決定
CH
MENU
EXIT
青
赤
緑
黄

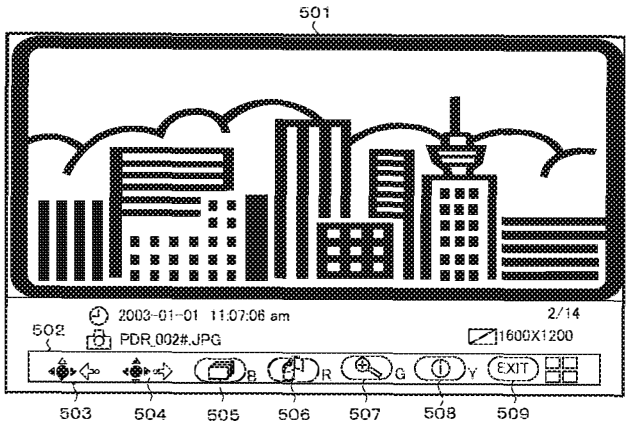
【図３】


MEMORY CARD
SM
SD
MS
Smart Media
SD Memory Card
MEMORY STICK
TV

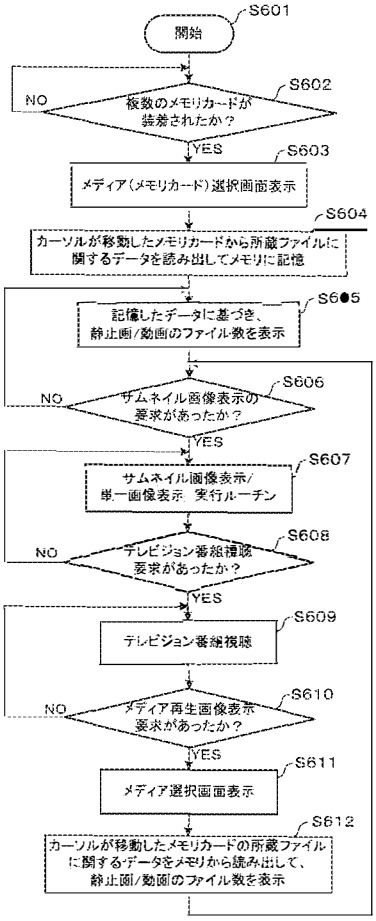
【図４】


MEMORY CARD
2003-01-01 11:07:06 am
PDR 002#.JPG
1600X1200
EXIT

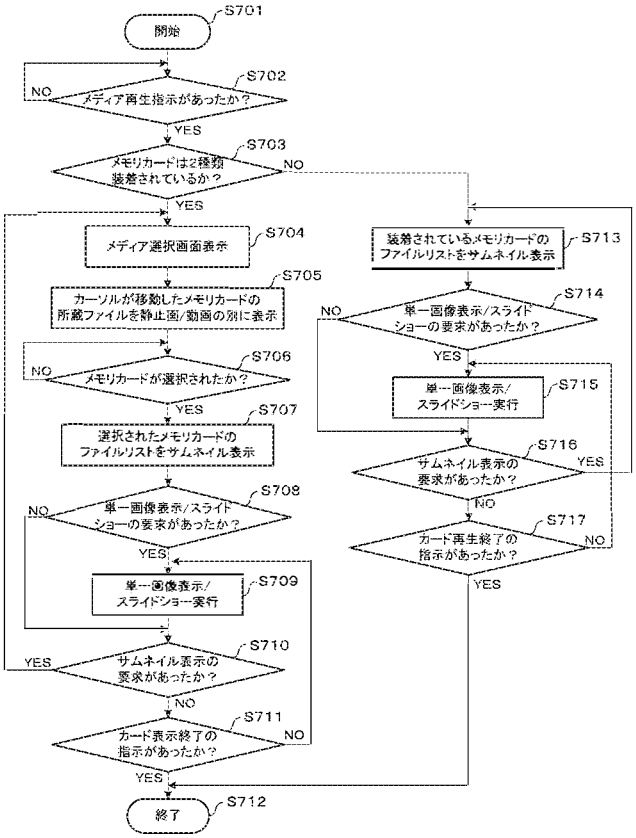
【図５】


501
2003-01-01 11:07:06 am
2/14
502
PDR_002#.JPG
1600X1200
B
R
G
Y
EXIT
503
504
505
506
507
508
509

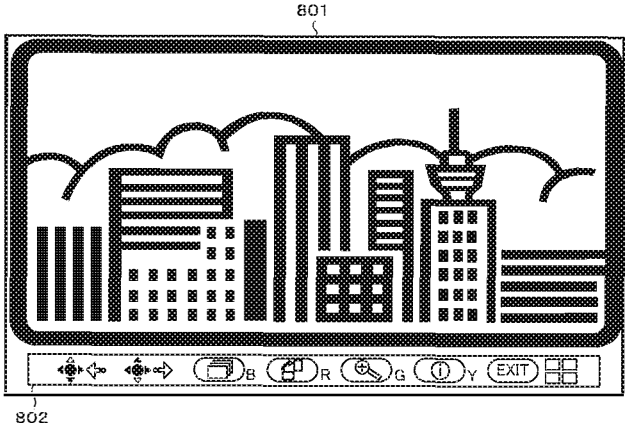
【図６】


S601
開始
S602
複数のメモリカードが装着されたか？
NO
YES
S603
メディア（メモリカード）選択画面表示
S604
カーソルが移動したメモリカードから所蔵ファイルに関するデータを読み出してメモリに記憶
S605
記憶したデータに基づき、静止画/動画のファイル数を表示
S606
サムネイル画像表示の要求があったか？
S607
サムネイル画像表示/単一画像表示 実行ルーチン
S608
テレビジョン番組視聴要求があったか？
S609
テレビジョン番組視聴
S610
メディア再生画像表示要求があったか？
S611
メディア選択画面表示
S612
カーソルが移動したメモリカードの所蔵ファイルに関するデータをメモリから読み出して、静止画/動画のファイル数を表示

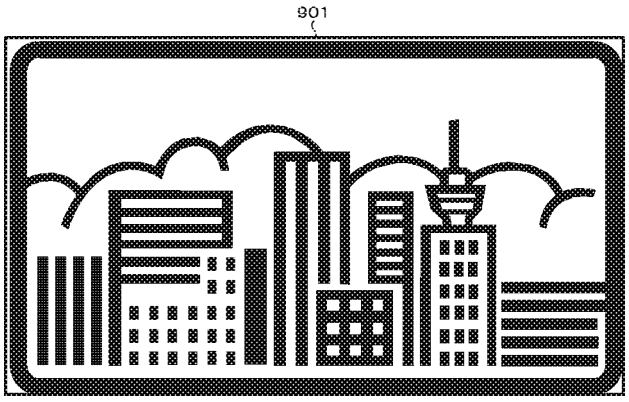
【図７】


S701
開始
S702
メディア再生指示があったか？
NO
YES
S703
メモリカードは2種類装着されているか？
NO
YES
S704
メディア選択画面表示
S705
カーソルが移動したメモリカードの所蔵ファイルを静止画/動画の別に表示
S706
メモリカードが選択されたか？
NO
YES
S707
選択されたメモリカードのファイルリストをサムネイル表示
S708
単一画像表示/スライドショーの要求があったか？
NO
YES
S709
単一画像表示/スライドショー実行
S710
サムネイル表示の要求があったか？
YES
NO
S711
カード表示終了の指示があったか？
NO
YES
S712
終了
S713
装着されているメモリカードのファイルリストをサムネイル表示
S714
単一画像表示/スライドショーの要求があったか？
NO
YES
S715
単一画像表示/スライドショー実行
S716
サムネイル表示の要求があったか？
YES
NO
S717
カード再生終了の指示があったか？
NO
YES

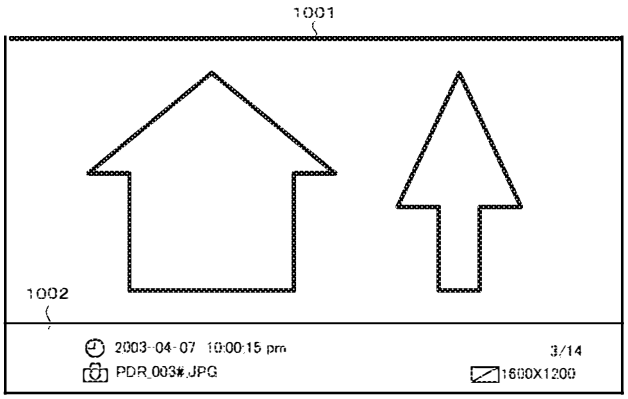
【図８】


801
B
R
G
Y
EXIT
802

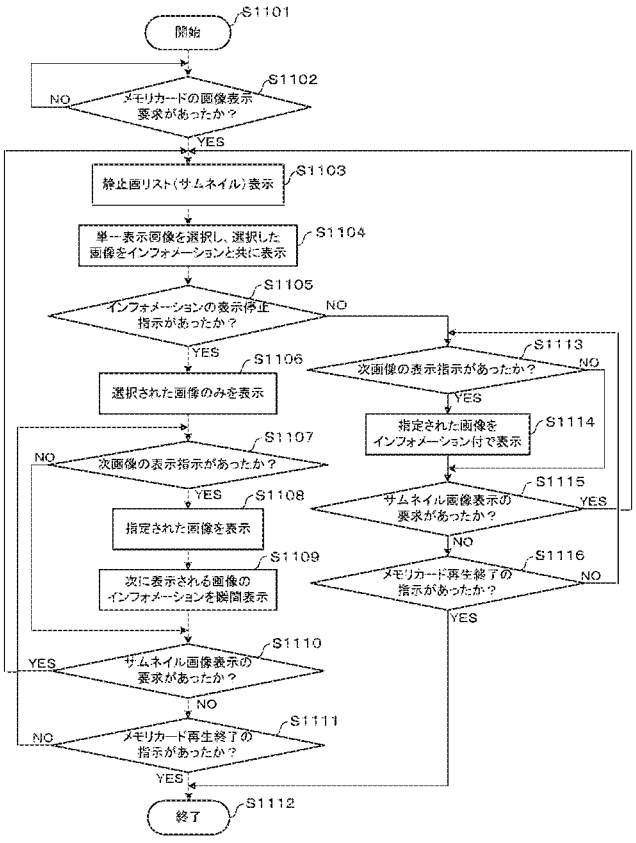
【図９】



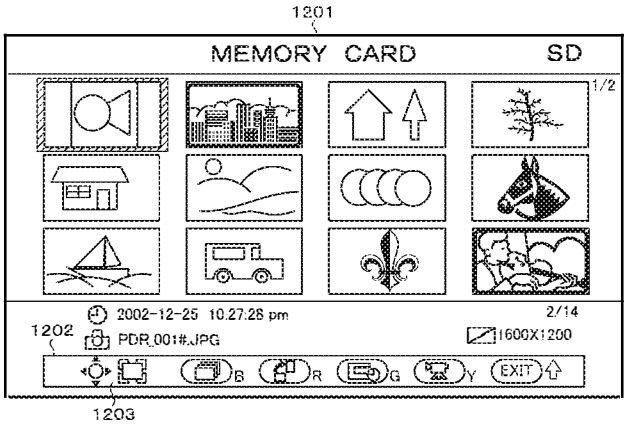
【図１０】



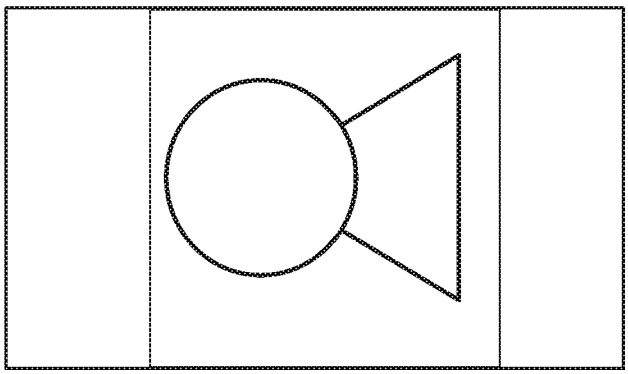
【図１１】



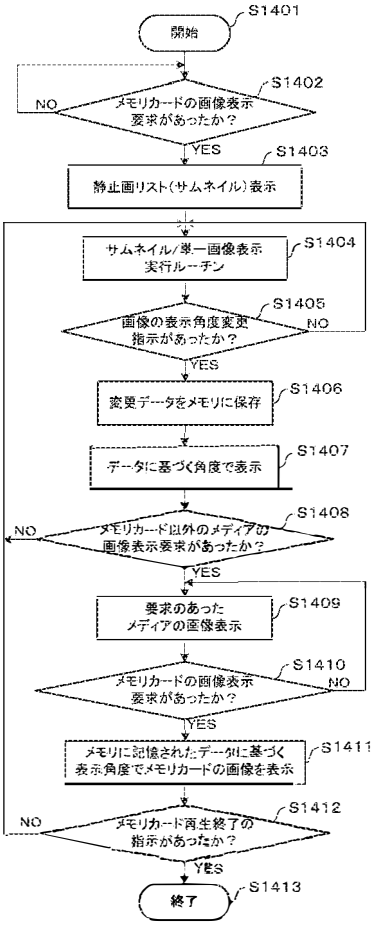
【図１２】



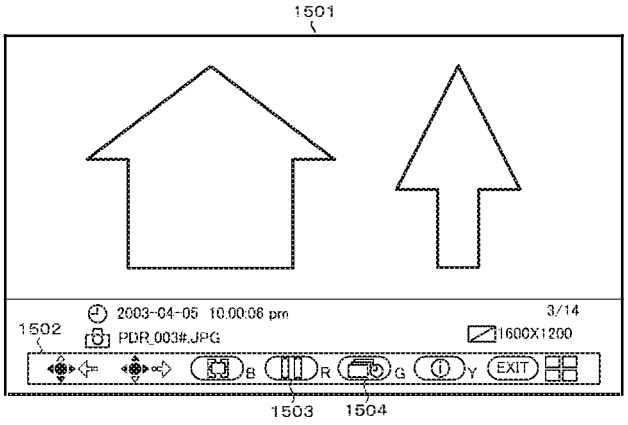
【図１３】



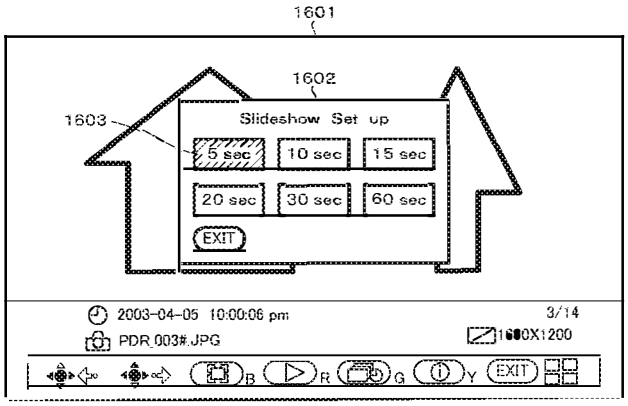
【図１４】



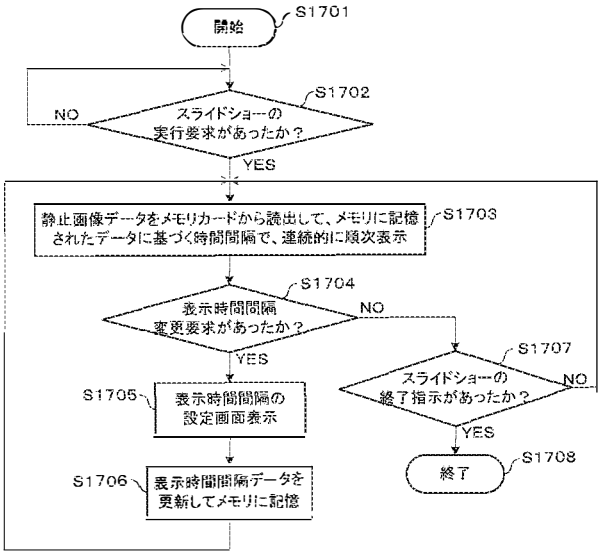
【図１５】



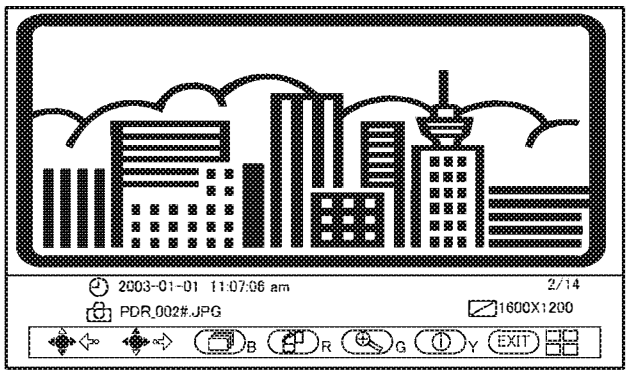
【図１６】



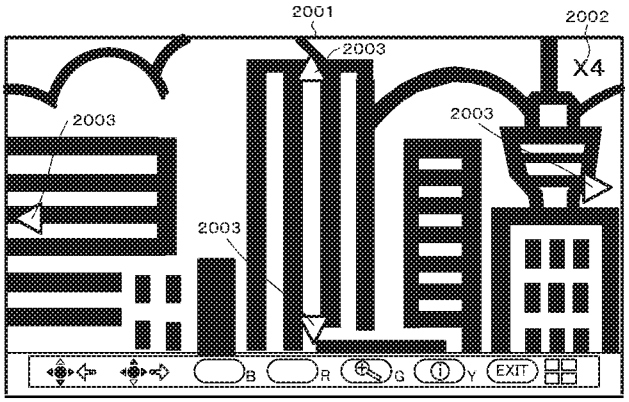
【図１７】



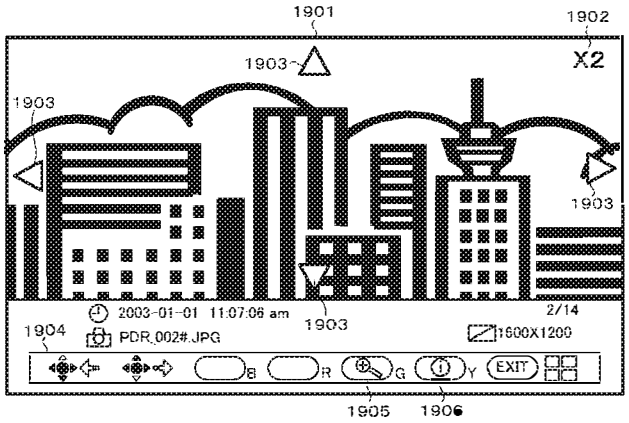
【図１８】



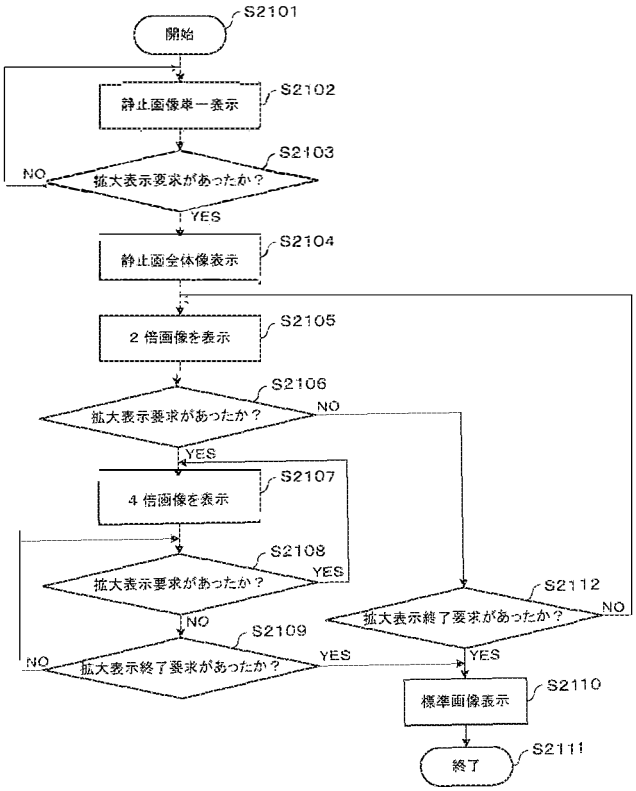
【図２０】



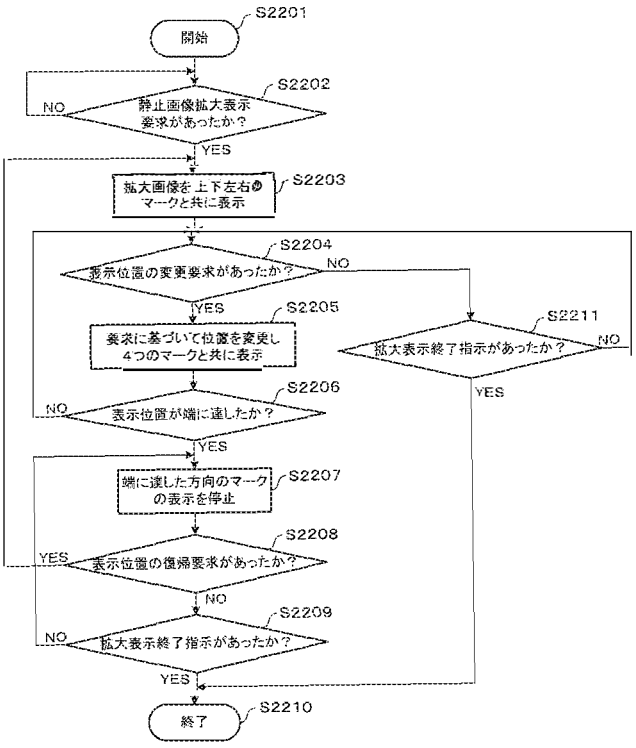
【図１９】



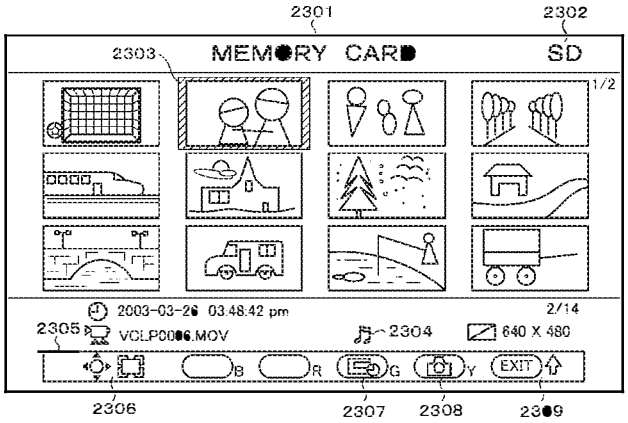
【図２１】



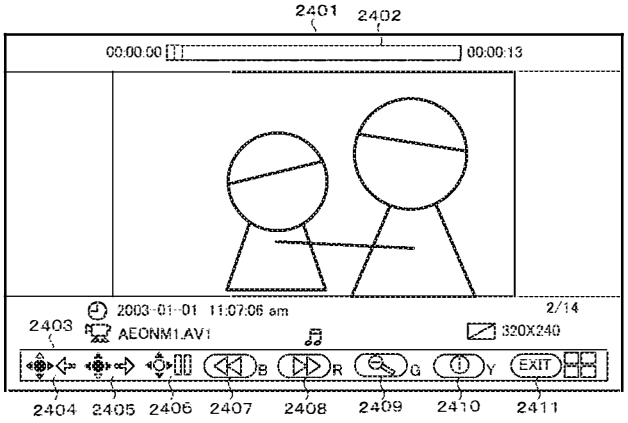
【図２２】



【図２３】


2301
2302
2303
MEMORY CARD
SD
1/2
2003-03-26 03:48:42 pm
2/14
2305
VCLP0006.MOV
2304
640 X 480
B
R
G
Y
EXIT
2306
2307
2308
2309

【図２４】


2401
2402
00:00:00
00:00:13
2003-01-01 11:07:06 am
2/14
2403
AEONM1.AVI
320X240
B
R
G
Y
EXIT
2404
2405
2406
2407
2408
2409
2410
2411

フロントページの続き

(72)発明者　北見　浩
東京都青梅市新町３丁目３番地の１　東芝デジタルメディアエンジニアリング株式会社内

Ｆターム(参考) 5C025 AA28 BA14 BA21 BA27 BA28 CA02 CA06 CA09 CA18 DA01
5C053 FA06 FA08 FA20 FA23 FA27 GA11 GB11 GB21 JA01 LA07
LA14
5C082 AA21 AA37 BA12 CA52 CA62 CA76 CA81 CB05 DA61 DA89
MM09
5E501 AB06 BA05 CA02 CA08 CB02 CB03 EA02 EB05 FA02 FA04
FA13 FA14 FA15 FA32 FB04 FB34

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 164 of 398

Electronic Patent Application Fee Transmittal

Application Number:	16576925
Filing Date:	20-Sep-2019
Title of Invention:	DISPLAY APPARATUS
First Named Inventor/Applicant Name:	Toshiyuki Kurita
Filer:	John Roberts Mattingly/Emily Jans
Attorney Docket Number:	ASA-10783-09

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1300	1300
		Total in USD ($)		**1300**

Electronic Acknowledgement Receipt

EFS ID:	38006246
Application Number:	16576925
International Application Number:	
Confirmation Number:	2343
Title of Invention:	DISPLAY APPARATUS
First Named Inventor/Applicant Name:	Toshiyuki Kurita
Customer Number:	24956
Filer:	John Roberts Mattingly/Emily Jans
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-10783-09
Receipt Date:	12-DEC-2019
Filing Date:	20-SEP-2019
Time Stamp:	13:50:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1300
RAM confirmation Number	E2019BBD51014557
Deposit Account	501417
Authorized User	Emily Jans

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	10783-09-RCE.pdf	1350118 8885dac655cca8a689422cbfd0a68e62f4e22f47	no	3
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	10783-09-SB08A.pdf	1034750 576b3ddf253508d817f03d470bebe91171e09294	no	4
Warnings:					
Information:					
3	Foreign Reference	JP2003-158704.pdf	493566 09512816f0ee8232f3feb386dddd93dec1f85765	no	25
Warnings:					
Information:					
4	Foreign Reference	JP2006-108749.pdf	959410 3f3429dc32470a8885647592192e6502c6273a75	no	83
Warnings:					
Information:					
5	Non Patent Literature	JPOA_08062019.pdf	737290 7e5b7f18e14108de7bceafb615b3a34d453bed77	no	9
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30246 14da140c77380ba0fbeaaed2287316480d676b66	no	2
Warnings:					
Information:					

Total Files Size (in bytes):	4605380

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

24956 7590 11/04/2019
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER
MICHAUD, ROBERT J

ART UNIT	PAPER NUMBER
2693	

DATE MAILED: 11/04/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

TITLE OF INVENTION: DISPLAY APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	02/04/2020

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

24956 7590 11/04/2019
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

TITLE OF INVENTION: DISPLAY APPARATUS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	02/04/2020

EXAMINER	ART UNIT	CLASS-SUBCLASS
MICHAUD, ROBERT J	2693	345-156000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

24956 7590 11/04/2019

MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
MICHAUD, ROBERT J	
ART UNIT	PAPER NUMBER
2693	

DATE MAILED: 11/04/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 16/576,925	Applicant(s) Kurita et al.	
	Examiner ROBERT J MICHAUD	Art Unit 2693	AIA (FITF) Status No

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to claims 09/20/2019.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1-20 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

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

   Certified copies:

   a) ☑ All b) ☐ Some *c) ☐ None of the:

   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)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/ROBERT J MICHAUD/
Examiner, Art Unit 2693

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

Terminal Disclaimer

2. The terminal disclaimer filed on 10/24/2019 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patents 10,037,744; 10,354,612; 10,339,893; 9,858,888; 9,218,783; 8,908,095 and 8,446,528 as well as copending Application 16/424,804 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Reason for Allowance

3. Claims 1-20 are allowed

4. Independent claims 1, 15 and 20 claims a display apparatus which transmits a picture acquisition request for getting picture information to an external image apparatus connected through a predetermined interface to the display apparatus from the external image apparatus at predetermined intervals and gets a plurality of pieces of picture information from the external image apparatus to be displayed. The plurality of pictures may be switched at predetermined intervals, for example, to be displayed, so that the plurality of pictures may be displayed in a so-called slide show manner. A plurality of pictures for thumbnail may be produced from the plurality of

pieces of picture information and be arranged together to be displayed in one picture screen of a display device, in a manner not disclose or suggested in any prior art.

The representative closest prior art is Nozaki et al., US Patent Application Publication (20040150724), hereinafter “Nozaki” and Kioke US Patent Application Publication (20080180551), hereinafter “Kioke” which do not teach the features claimed of: Claim 1 and similarly worded claims 15 and 20, all of which include the following limitations in their claims: 1. “An image display apparatus, comprising: … a first signal to the digital camera for causing the digital camera to output compressed first image information corresponding to first still pictures, and receives, over the cable, the compressed first image information corresponding to first still pictures output from the digital camera, the decoder decodes the compressed first image information corresponding to first still pictures received by the USB interface circuitry, and the display screen displays a slide show at predetermined time intervals with the first still pictures, as the first images, based on the decoded first image information obtained by the decoder, and wherein if displaying the second images on the display screen, based on an operation on the input device of the image display apparatus for conducting a slide show, the wireless LAN interface circuitry wirelessly transmits, over the network, a second signal to the digital camera for causing the digital camera to output compressed second image information corresponding to second still pictures, and wirelessly receives, over the network, the compressed second image information corresponding to second still pictures output from the digital camera, the decoder decodes the compressed second image information corresponding to second still pictures received by the wireless LAN interface circuitry, and the display screen displays a slide show at

predetermined time intervals with the second still pictures, as the second images, based on the decoded second image information obtained by the decoder.".

In regards to claims 1, 15 and 20 the representative prior art is Nozaki and Kioke. Nozaki discloses a digital camera system connecting plural units of digital cameras and letting the camera collaborate to work. Nozaki's invention provides a digital camera system includes a first digital camera and a second digital camera, wherein the first digital camera and the second digital camera are capable of communicating with each other and the first digital camera further includes a first input/output device that sends/receives a data to and from the second digital camera... a first controller that controls the first digital camera based upon an operation of any of the second plurality of operating devices. Nozaki further discloses that with an instruction of reproduction, an automatic change of reproduced image data to be displayed can be made like a "slide show" involving the other digital camera

Kioke discloses an image pickup apparatus and a control method for the image pickup apparatus, to an image display apparatus and a control method for the image display apparatus, and to a recording medium, and more particularly, to storing of still image data in a moving image format and transmission of the still image data stored in the moving image format. Kioke further discloses control commands include information, such as a request for transfer of still image data, a transfer response for still image data, the sizes of the frame memories 11 and 21, the position of an image where a slide show starts, and the like

In regards to claims 1, 15 and 20 Nozaki nor Kioke, alone, or in combination, do not provide a teaching, a suggestion or a motivation that could be found either in the art

or within the skill of one of ordinary skill in the art at the time of the invention to modify or combine the prior art to disclose the cited claim limitations above of the claimed invention. Claims 2-10 and 16-19 depend from claims 1 and 15 respectively and as such the claims are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT J MICHAUD whose telephone number is (571)270-3981. The examiner can normally be reached on 8:30 - 5:00.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Lee can be reached on 571-272-2963. 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.

/ROBERT J MICHAUD/
Examiner, Art Unit 2693

Notice of References Cited	Application/Control No. 16/576,925	Applicant(s)/Patent Under Reexamination Kurita et al.	
	Examiner ROBERT J MICHAUD	Art Unit 2693	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20040150724-A1	08-2004	Nozaki, Hirotake	H04N1/00347	348/211.4
*	B	US-20080180551-A1	07-2008	Koike; Toru	G09G5/006	348/231.99
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

CPC							
Symbol						**Type**	**Version**
G09G	/	5	/	006		F	2013-01-01
H04N	/	1	/	00164		I	2013-01-01
H04N	/	1	/	00172		I	2013-01-01
H04N	/	1	/	00198		I	2013-01-01
H04N	/	1	/	00347		I	2013-01-01
H04N	/	1	/	00442		I	2013-01-01
H04N	/	1	/	00453		I	2013-01-01
H04N	/	1	/	00458		I	2013-01-01
H04N	/	1	/	00461		I	2013-01-01
H04N	/	21	/	4122		I	2013-01-01
H04N	/	21	/	4223		I	2013-01-01
H04N	/	21	/	43632		I	2013-01-01
H04N	/	21	/	43637		I	2013-01-01
H04N	/	21	/	43853		I	2013-01-01
H04N	/	21	/	440263		I	2013-01-01
H04N	/	21	/	4438		I	2013-01-01
H04N	/	21	/	4627		I	2013-01-01
H04N	/	21	/	6112		I	2013-01-01
H04N	/	21	/	6131		I	2013-01-01
G09G	/	5	/	005		I	2013-01-01
H04N	/	1	/	00129		I	2013-01-01
G06F	/	3	/	0481		I	2013-01-01
G06T	/	1	/	0007		I	2013-01-01
H04N	/	1	/	00177		I	2013-01-01
H04N	/	21	/	43635		I	2013-01-01
H04N	/	1	/	00137		I	2013-01-01
G09G	/	2370	/	12		A	2013-01-01
H04N	/	1	/	00307		A	2013-01-01
H04N	/	2201	/	0049		A	2013-01-01
H04N	/	2201	/	0055		A	2013-01-01
H04N	/	2201	/	0084		A	2013-01-01

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	27 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20191027

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 181 of 398

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

CPC								
Symbol							**Type**	**Version**
H04N	/	2201	/	0086			A	2013-01-01
H04N	/	2201	/	0087			A	2013-01-01
H04N	/	2201	/	0089			A	2013-01-01
G06F	/	3	/	0482			A	2013-01-01
G09G	/	2340	/	02			A	2013-01-01
G09G	/	2354	/	00			A	2013-01-01
G09G	/	2360	/	02			A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	27 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office — Part of Paper No.: 20191027

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 182 of 398

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G09G5/00	/	5	/	00

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	27 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20191027

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 183 of 398

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	**Art Unit**
	ROBERT J MICHAUD	2693

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	10	19	19										
2	2	11	11	20	20										
3	3	12	12												
4	4	13	13												
5	5	14	14												
6	6	15	15												
7	7	16	16												
8	8	17	17												
9	9	18	18												

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/ROBERT J MICHAUD/ Examiner, Art Unit 2693	27 October 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20191027

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 184 of 398

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/576,925	Kurita et al.
	Examiner	Art Unit
	ROBERT J MICHAUD	2693

CPC - Searched*		
Symbol	Date	Examiner
(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc.	10/27/2019	RM

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc.	10/27/2019	RM

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	(decoder and (uncompressed near3 image) and (slide adj show)).clm.	10/27/2019	

/ROBERT J MICHAUD/ Examiner, Art Unit 2693	

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 185 of 398

Bibliographic Data

Application No: 16/576,925

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /ROBERT J MICHAUD/ [ ]

Examiner's Signature | Initials

Title: DISPLAY APPARATUS

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/20/2019	345	2693	ASA-10783-09
RULE			

APPLICANTS

Maxell, Ltd., Kyoto, JAPAN

INVENTORS

Toshiyuki Kurita Yokohama, JAPAN

Hitoaki Owashi Yokohama, JAPAN

CONTINUING DATA

This application is a CON of 16424804 05/29/2019

16424804 is a CON of 16021246 06/28/2018 PAT 10339893

16021246 is a CON of 15287403 10/06/2016 PAT 10037744

15287403 is a CON of 14941666 11/16/2015 PAT 9858888

14941666 is a CON of 14521282 10/22/2014 PAT 9218783

14521282 is a CON of 13868840 04/23/2013 PAT 8908095

13868840 is a CON of 12252422 10/16/2008 PAT 8446528

FOREIGN APPLICATIONS

JAPAN 2007-269651 10/17/2007

IF REQUIRED, FOREIGN LICENSE GRANTED**

10/02/2019

STATE OR COUNTRY

JAPAN

ADDRESS

MATTINGLY & MALUR, PC

1800 DIAGONAL ROAD

SUITE 210

ALEXANDRIA, VA 22314

UNITED STATES

FILING FEE RECEIVED

$5,860

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-10783-09

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050105007	A1	2005-05-19	CHRISTIAN	
	2	20060098186	A1	2006-05-11	YUMIKI	
	3	20050288058	A1	2005-12-29	CHANDHOK et al.	
	4	20030169370	A1	2003-09-11	EJIMA et al.	
	5	20050107032	A1	2005-05-19	HOMMA et al.	

/ROBERT J MICHAUD/ 10/27/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

Exhibit 1002
TCL v. Maxell - IPR2025-00134

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

	6	20040189827	A1	2004-09-30	Kim et al.	
	7	20010043731	A1	2001-11-22	ITO et al.	
	8	20080180551	A1	2008-07-31	Koike	
	9	20070277216	A1	2007-11-29	Nakajima; Yasuhisa	
	10	20060109283	A1	2006-05-25	Shipman; Samuel E.	
	11	20060098031	A1	2006-05-11	Lai; Jimmy Kwok Lap	
	12	20060078303	A1	2006-04-13	Moon; Seong-jin	
	13	20040150724	A1	2004-08-05	Nozaki, Hirotake	
	14	20050083414	A1	2005-04-21	Hidaka, Yasuhiro	
	15	20090063982	A1	2009-03-05	Cho; Seung-kee	
	16	20060192791	A1	2006-08-31	Schick; Darryl Richard	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

/ROBERT J MICHAUD/ 10/27/2019

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

	17	20080180551	A1	2008-07-31	Koike; Toru	
	18	20080138046	A1	2008-06-12	NAKAZAWA	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2004-336476	JP	A	2004-11-25	SONY CORP.		☒
	2	2005-016991	JP	A	2005-01-20	RAILWAY TECHNICAL		☒
	3	1993969	CN	A	2007-07-04	QUALCOMM INC.	Corresponds to U.S. Publication Document 3	☐
	4	2004-112459	JP		2004-04-08	SEIKO EPSON CORP.		☒
	5	2000-032437	JP		2000-01-28	MATSUSHITA ELE. IND. CO.		☒
	6	1774043	CN	A	2006-05-17	MATSUSHITA ELECTRIC IND CO., LTD		☒
	7	2007-13697	JP	A	2007-01-18	VICTOR CO OF JAPAN LTD		☒

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

/ROBERT J MICHAUD/ 10/27/2019

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-10783-09

	8	2005-117182	JP	A	2005-04-28	CANON INC		☒
	9	2007-178949	JP	A	2007-07-12	SHARP CORP		☒
	10	2007-193157	JP	A	2007-08-02	SONY CORP		☒
	11	10-285240	JP	A	1998-10-23	CANON INC		☒
	12	2008-187536	JP	A	2008-08-14	CANON INC		☒
	13	2006-295317	JP	A	2006-10-26	CANON INC		☒
	14	2005-39668	JP	A	2005-02-10	FUJI PHOTO FILM CO. LTD.		☐
	15	2003-333465	JP	A	2003-11-21	Fuji Photo Film Co., Ltd.		☐
	16	2004112460	JP	A	2004-04-08	Seiko Epson Corp.		☐
	17	2008-147958 w/abs	JP	A	2008-06-26	CANON KK		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

/ROBERT J MICHAUD/ 10/27/2019

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-10783-09

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Japan Patent Office office action for application JP2007-269651 (July 10, 2012).	
	2	China State Intellectual Property Office (SIPO) office action for SIPO patent application CN200810170524.X (June 12, 2010).	X
	3	Chinese Office Action for the counterpart Chinese application 201110229779.0.	☒
	4	Japanese Office Action for the counterpart Japanese application 2012-223808.	☒
	5	Office Action issued on August 9, 2013 in a corresponding Japanese application.	☒
	6	Office Action issued on December 9, 2014 in a corresponding Japanese application 2012-223808, 3 pages.	☐
	7	Japanese Office Action received in corresponding Japanese Application No. 2017-037884 dated December 12, 2017	☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/ROBERT J MICHAUD/	Date Considered	10/27/2019

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-10783-09

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-09-20
Name/Print	John R. Mattingly	Registration Number	30,293

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /R.J.M/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	"20070277216"	USPAT	OR	OFF	2018/08/16 15:05
S2	5	((first and second) and (camera phone (potrable adj (terminal device)) apparatus)) same ((wireless LAN network) near6 (USB and HDMI))	USPAT	OR	OFF	2018/08/16 15 25
S3	16	((first and second) and (camera phone (potrable adj (terminal device)) apparatus)) same ((wireless LAN network) near6 (USB and HDMI))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 15:27
S4	4	S3 and compress$5	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 15:27
S5	54	((send receive transmit broadcast) near3 ((images video) near6 camera)) same USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:33
S6	38	((send receive transmit transfer) near3 (images video)) near6 camera with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:36
S7	0	((send receive transmit transfer) near3 (images video)) near6 ((first and second) near5 (device apparatus tv phone camera)) with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:38
S8	5	((send receive transmit transfer) near3 (images video)) near6 ((first and second) and (device apparatus tv phone camera)) with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:54
S9	4	"56008463".FMID.	US-PGPUB; USPAT; FPRS	OR	OFF	2018/08/16 19:57
S10	15	((send receive transmit transfer) near3 (images video)) with ((first and second) near5 (device apparatus tv phone camera)) with USB and HDMI	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/16 19:57
S11	5	"8446528"	USPAT	OR	OFF	2018/08/18 14:32
S12	0	receive same (video near3 (stream data)) with hdmi near3 conect$4	USPAT	OR	OFF	2018/08/18 14:35
S13	0	receive same (video near3 (stream data)) with hdmi near3 conect$4	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:36
S14	0	(video near3 (stream data)) with hdmi near3 conect$4	USPAT; EPO; JPO; DERWENT	O R	OFF	2018/08/18 14:36
S15	336703	(video near3 (stream data))	USPAT;	OR	OFF	2018/08/18

			EPO; JPO; DERWENT			14:36
S16	1944	(video near3 (stream data)) with HDMI	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:37
S17	316	(video near3 (stream data)) with HDMI near3 connect$4	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:37
S18	239	(video near3 (stream data)) with HDMI near3 connect$4 and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:37
S19	21	(video near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:38
S20	459	(video near3 (stream data)) with ((USB HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 14:38
S21	15	(image near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:38
S22	2	"20090129692"	USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:43
S23	3	"20090129692"	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:45
S24	15	(image near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:45
S25	39	(image near3 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 14:45
S26	547	(image near3 (stream data)) with ((USB HDMI) near3 connect$4) and receive	USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 15:02
S27	132	((image video) near6 (stream data)) with ((USB and HDMI) near3 connect$4) and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/18 15:02
S28	598	(video near3 (stream data)) with HDMI near3 connect$4 and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 15:10
S29	300	(image near3 (stream data)) with HDMI near3 connect$4 and receive	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 15:10
S30	1	(image near3 (stream data)) with HDMI near3 connect$4 and receive and slideshow	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 20:22
S31	12	(image near3 (stream data)) with usb near3 connect$4 and receive and slideshow	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/18 20:23
S32	1080	(image near3 (stream data)) with usb	US-PGPUB;	OR	OFF	2018/08/18

		near3 connect$4 and receive	USPAT; EPO·, JPO·, D ERWENT			20:25
S33	93	(image near3 (stream data)) with usb near3 connect$4 and receive and HD MI	US-PGPUB; USPAT; EPO·, JPO·, D ERWENT	OR	OFF	2018/08/18 20:25
S34	0	"20010150724"	US-PGPUB; USPAT; EPO·, JPO·, D ERWENT	OR	OFF	2018/08/18 20:35
S35	3	"20040150724"	US-PGPUB; USPAT; EPO·, JPO; D ERWENT	OR	OFF	2018/08/18 20:36
S36	3	"20050083414"	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	OFF	2018/08/18 20:36
S37	24	(camera near6 (television tv computer phone)) with ((USB and HD MI) near3 connect$4) and receive	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/18 20:41
S38	21	(image near3 (stream data)) with usb near3 connect$4 and slideshow	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	OFF	2018/08/18 21:05
S39	101	(camera near6 (television tv computer phone)) with usb near3 connect$4 and slideshow	US-PGPUB; USPAT; EPO·, JPO; D ERWENT	OR	ON	2018/08/18 21:11
S40	2057	(camera near6 (television tv computer phone)) with usb near3 connect$4 and receive	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	ON	2018/08/19 13:32
S41	0	(camera near6 (television tv computer phone)) with usb near3 (connect$4 with ((receive and transmit) near5 image))	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:33
S42	2	(camera near6 (television tv computer phone)) with usb near3 connect$4 with ((receive and transmit) near5 image)	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:34
S43	352013	(camera near6 (television tv computer phone)) near10 usb nsame connect$4 near5 image	US-PGPUB; USPAT; EPO·, JPO; D ERWENT	OR	ON	2018/08/19 13:35
S44	344	(camera near6 (television tv computer phone)) near10 usb same connect$4 near5 image	US-PGPUB; USPAT; EPO·, JPO:, D ERWENT	OR	ON	2018/08/19 13:35
S45	185	(camera near6 (television tv computer phone)) near10 usb same connect$4 and (slideshow (slide adj show))	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:36
S46	665	images and (television tv computer phone) near10 usb same (decode decompress$4)	US-PGPUB; USPAT; EPO; JPO; D ERWENT	OR	ON	2018/08/19 13:47

S47	200	images and (television tv display) near10 usb same (decode decompress$4)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/19 13:47
S48	8	images and (television tv display) near10 usb same (decode decompress$4) and (slideshow (slide adj show))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	ON	2018/08/19 13:58
S49	0	"20080120676"	USPAT	OR	OFF	2018/08/20 13:57
S50	0	"20080120676"	USPAT	OR	OFF	2018/08/20 13:57
S51	1	"20080120676"	US-PGPUB; USPAT	OR	OFF	2018/08/20 13:58
S52	3	"15287403"	US-PGPUB; USPAT	OR	OFF	2018/08/20 14:34
S53	2	"20040150724"	US-PGPUB; USPAT	OR	OFF	2018/08/22 19:55
S54	2	"20080180551"	US-PGPUB; USPAT	OR	OFF	2018/08/22 19:58
S55	2	"20060192791"	US-PGPUB; USPAT	OR	OFF	2018/08/22 20:37
S56	32	((("Kurita") near3 ("Toshiyuki"))).INV.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:33
S57	12	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:34
S58	0	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and drcoder	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:34
S59	12	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:34
S60	0	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder and slideshow	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:35
S61	11	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder and slide adj show	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:35
S62	3	((("Kurita") near3 ("Toshiyuki"))).INV. and USB and HDMI and decoder and ((slide adj show) near4 predetermined)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:36
S63	195	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:41
S64	3	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and ((slide adj show) near4 predetermined)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:41
S65	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and (slide adj show)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:41
S66	12	(G09G5/006 G09G5/006 G06F3/0481	US-PGPUB;	OR	OFF	2018/08/24

		G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and (slide adj show slideshow)	USPAT; USOCR			07:42
S67	12	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and USB and HDMI and decoder and ((slide adj show) slideshow)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:42
S68	36	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB HDMI) and decoder and ((slide adj show) slideshow)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:42
S69	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4)) and ((slide adj show) slideshow)	US-PGPUB; USPAT; USOCR	OR	OFF	2018/08/24 07:43
S70	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4)) and ((slide adj show) slideshow)	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/24 07:44
S71	54	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4))	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/24 07:44
S72	11	(G09G5/006 G09G5/006 G06F3/0481 G06T1/0007 H04N1/00129 H04N1/00129).cpc. and (USB near5 (uncompress$4 decompress$4 decod$4)) and rotation	US-PGPUB; USPAT; EPO; JPO; DERWENT	OR	OFF	2018/08/24 07:45

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S73	0	(((Universal near3 Serial) USB) with ((High near3 definition) HDMI) same decoder and selector).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:22
S74	6151	(decoder and selector).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:22
S75	2	(decoder and selector and (uncompressed near3 image)).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:23
S76	0	(decoder and selector and (uncompressed near3 image) and (slide adj show)).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:25
S77	1	(decoder and (uncompressed near3 image) and (slide adj show)).clm.	US-PGPUB; USPAT	OR	OFF	2019/02/07 09:25

10/27/2019 9:53:13 PM
C:\Users\rmichaud\Documents\Applications\16576925\6925.wsp

Doc Code: DIST.E.FILE **Document Description: Electronic Terminal Disclaimer - Filed**	PTO/SB/25 PTO/SB/26 U.S. Patent and Trademark Office Department of Commerce

Electronic Petition Request	**TERMINAL DISCLAIMER TO OBVIATE A PROVISIONAL DOUBLE PATENTING REJECTION OVER A PENDING "REFERENCE" APPLICATION AND TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT**
Application Number	16576925
Filing Date	20-Sep-2019
First Named Inventor	Toshiyuki Kurita
Attorney Docket Number	ASA-10783-09
Title of Invention	DISPLAY APPARATUS

☒ Filing of terminal disclaimer does not obviate requirement for response under 37 CFR 1.111 to outstanding Office Action

☒ This electronic Terminal Disclaimer is not being used for a Joint Research Agreement.

Owner	Percent Interest
Maxell, Ltd.	100 %

The owner(s) of percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of any patent granted on pending reference Application Number(s)

16424804 filed on 05/29/2019

as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and any patent granted on the reference application are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term of any patent granted on said reference application, "as the term of any patent granted on said reference application may be shortened by any terminal disclaimer filed prior to the grant of any patent on the pending reference application," in the event that any such patent granted on the pending reference application: expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321, has all claims canceled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of its full statutory term as shortened by any terminal disclaimer filed prior to its grant.

The owner(s) with percent interest listed above in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term of prior patent number(s)

9858888

9218783

8908095

8446528

10339893

10354612

10037744

as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term of the prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:
- expires for failure to pay a maintenance fee;
- is held unenforceable;
- is found invalid by a court of competent jurisdiction;
- is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
- has all claims canceled by a reexamination certificate;
- is reissued; or
- is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

◉ Terminal disclaimer fee under 37 CFR 1.20(d) is included with Electronic Terminal Disclaimer request.

○ I certify, in accordance with 37 CFR 1.4(d)(4), that the terminal disclaimer fee under 37 CFR 1.20(d) required for this terminal disclaimer has already been paid in the above-identified application.

Applicants claims the following fee status:

○ Small Entity

○ Micro Entity

◉ Regular Undiscounted

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

- (◉) An attorney or agent registered to practice before the Patent and Trademark Office who is of record in this application

  Registration Number 30293

- (◯) A sole inventor
- (◯) A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application
- (◯) A joint inventor; all of whom are signing this request

Signature	/John R. Mattingly/
Name	John R. Mattingly

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Electronic Patent Application Fee Transmittal

Application Number:	16576925
Filing Date:	20-Sep-2019
Title of Invention:	DISPLAY APPARATUS
First Named Inventor/Applicant Name:	Toshiyuki Kurita
Filer:	John Roberts Mattingly/Krista Hargrove
Attorney Docket Number:	ASA-10783-09

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**160**

Doc Code: DISQ.E.FILE
Document Description: Electronic Terminal Disclaimer – Approved

Application No.: 16576925

Filing Date: 20-Sep-2019

Applicant/Patent under Reexamination: Kurita

Electronic Terminal Disclaimer filed on October 24, 2019

☒ APPROVED

This patent is subject to a terminal disclaimer

☐ DISAPPROVED

Approved/Disapproved by: Electronic Terminal Disclaimer automatically approved by EFS-Web

U.S. Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	37524387
Application Number:	16576925
International Application Number:	
Confirmation Number:	2343
Title of Invention:	DISPLAY APPARATUS
First Named Inventor/Applicant Name:	Toshiyuki Kurita
Customer Number:	24956
Filer:	John Roberts Mattingly/Krista Hargrove
Filer Authorized By:	John Roberts Mattingly
Attorney Docket Number:	ASA-10783-09
Receipt Date:	24-OCT-2019
Filing Date:	20-SEP-2019
Time Stamp:	14:55:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	E20190NE55226206
Deposit Account	501417
Authorized User	Krista Hargrove

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer-Filed (Electronic)	eTerminal-Disclaimer.pdf	38264 b76fa586b851cebff211114455d49097b531053e	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30488 8da3da5f7a3219dbf01d0cdfe2aef1d77f1e4873	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	68752		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/576,925	09/20/2019	Toshiyuki Kurita	ASA-10783-09	2343

24956 7590 10/11/2019
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314

EXAMINER	
AWAD, AMR A	

ART UNIT	PAPER NUMBER
2621	

NOTIFICATION DATE	DELIVERY MODE
10/11/2019	ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptomail@mmiplaw.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 16/576,925	**Applicant(s)** Kurita et al.	
	Examiner BRIAN W BROWN	**Art Unit** OPET	**AIA (FITF) Status** No

1. THE REQUEST FILED 20 September 2019 IS **GRANTED** .

The above-identified application has met the requirements for prioritized examination

A. ☑ for an original nonprovisional application (Track I).
B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:

A. filing a **petition for extension of time** to extend the time period for filing a reply;

B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;

C. filing a **request for continued examination** ;

D. filing a notice of appeal;

E. filing a request for suspension of action;

F. mailing of a notice of allowance;

G. mailing of a final Office action;

H. completion of examination as defined in 37 CFR 41.102; or

I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to BRIAN BROWN at (571)272-5338.

In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/BRIAN W BROWN/
Petitions Examiner, OPET

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/576,925	09/20/2019	2676	1720	ASA-10783-09	20	3

CONFIRMATION NO. 2343

FILING RECEIPT

24956
MATTINGLY & MALUR, PC
1800 DIAGONAL ROAD
SUITE 210
ALEXANDRIA, VA 22314
UNITED STATES OF AMERICA

OC000000111819189

Date Mailed: 10/04/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Toshiyuki Kurita, Yokohama, JAPAN;
Hitoaki Owashi, Yokohama, JAPAN;

Applicant(s)

Maxell, Ltd., Kyoto, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 24956

Domestic Priority data as claimed by applicant

This application is a CON of 16/424,804 05/29/2019
which is a CON of 16/021,246 06/28/2018 PAT 10339893
which is a CON of 15/287,403 10/06/2016 PAT 10037744
which is a CON of 14/941,666 11/16/2015 PAT 9858888
which is a CON of 14/521,282 10/22/2014 PAT 9218783
which is a CON of 13/868,840 04/23/2013 PAT 8908095
which is a CON of 12/252,422 10/16/2008 PAT 8446528

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
JAPAN 2007-269651 10/17/2007 No Access Code Provided

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 10/02/2019
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/576,925**
Projected Publication Date: 01/09/2020
Non-Publication Request: No
Early Publication Request: No
Title

DISPLAY APPARATUS

Preliminary Class

358

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop

technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 214 of 398

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/576,925

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	660
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	20 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*				x 460 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1720

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 01/31/2018. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	To be assigned
Filing Date	September 20, 2019
First Named Inventor	T. KURITA
Title	DISPLAY APPARATUS
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-10783-09

SIGNATURE of Applicant or Patent Practitioner

Signature	/John R. Mattingly/	Date (Optional)	September 20, 2019
Name	John R. Mattingly	Registration Number	30293
Title (if Applicant is a juristic entity)	Attorney		
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

出願人による委任状
POWER OF ATTORNEY BY APPLICANT

私はここに、添付の伝送書もしくは下記枠内で特定された出願に対して、現時点より前に与えられたすべての委任状を破棄します。
I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

出願番号 Application Number	出願日 Filing Date

(注記：PTO/AIA/82Aに同じ情報が明記されている場合、上の枠内は空欄でも可)
(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ 私は、下記顧客番号に関連する特許弁護士を、当方の弁護士あるいは代理人に指名し、添付の伝送書（PTO/AIA/82A）内もしくは上記に記載の特許出願に関連した米国特許商標庁との業務の全てを同弁護士あるいは代理人に委任します。
I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 24956

又は
OR

☐ 私は、添付のリスト(PTO/AIA/82C)に記載の特許弁護士を、当方の弁護士あるいは代理人に指名し、添付の伝送書（PTO/AIA/82A）内もしくは上記に記載の特許出願に関連した米国特許商標庁との業務の全てを同弁護士あるいは代理人に委任します。(注記: PTO/AIA/82C を記入すること。)
I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

添付の伝送書又は上記枠内にて特定された出願に対する郵便物送付先を下記のいずれかに登録または変更してください。
Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ 上記顧客番号に付随する住所
The address associated with the above-mentioned Customer Number

又は
OR

☐ 顧客番号に付随する住所
The address associated with Customer Number:

又は
OR

事務所または個人名 Firm or Individual Name					
住所 Address					
市 City		州 State		郵便番号 Zip	
国 Country					
電話番号 Telephone		メールアドレス Email			

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/82B (07-13)
Approved for use through 11/30/2014. OMB 0651-0051
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

出願人による委任状
POWER OF ATTORNEY BY APPLICANT

私は出願人であり（出願人が法人の場合、出願人名を下記枠内に記入）：
I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Maxell, Ltd.

☐ 発明者もしくは共同発明者である（下記役職の明記は不要）
Inventor or Joint Inventor (title not required below)

☐ 死亡したもしくは成年被後見人である発明者の法定代理人である（下記役職の明記は不要）
Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ 被譲渡人もしくは発明者が譲渡する義務を負う人物である
Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ 上記以外で、十分な独占的所有権を示す人物である（例：37 CFR 1.46(b)(2)に基づく申請が本出願において認められた、又は本書類と共にその申請がなされている場合）（出願人が法人の場合、署名者の役職を明記すること）
Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

特許出願人の署名
SIGNATURE of Applicant for Patent

下記署名者（役職は下記に記載）は出願人の代理人と認められている（出願人が法人の場合等）
The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

署名 Signature	Kazuhiro Kaizaki	署名日（任意） Date (Optional)	Oct. 17. 2017
氏名 Name	Kazuhiro Kaizaki		
役職 Title	Vice President		

注記: 署名 - 本書類は37 CFR 1.33に基づき署名されなければならない。署名の要件および証明に関しては37 CFR 1.4を参照。出願人が複数いる場合は、複数の書類を使うこと。

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ 提出書類 計_____枚。
Total of _____ forms are submitted.

Privacy Act Statement

1974年プライバシー保護法(P.L. 93-579)により、特許出願あるいは特許に関する添付書類の提出に関連し、特定情報を提供することが求められています。同法の規定要件に基づき、下記の事項に注意してください。（1）本情報の収集は35 U.S.C 2(b)(2)により認められています。（2）求められた情報の提供は任意です。（3）米国特許商標庁による本情報の主な使用目的は、特許出願あるいは特許に関する提出書類の処理や審査であり、求められた情報を提出しない場合、米国特許商標庁による提出書類の処理や審査に支障をきたす場合があります。その場合、特許出願の手続中止や放棄、または特許失効につながることがあります。

本用紙に記載された情報は以下の通常使用目的に使われます。

1. 本用紙に記載の情報は、情報公開法(5 U.S.C. 552)およびプライバシー法(5 U.S.C 552a)が許容する範囲において機密情報扱いとなります。本記録システムの記録は、同記録の開示が情報公開法で要求されるものに該当するか否かを判断する目的で、司法省に開示される場合があります。
2. 本記録システムの記録は、通常使用として、法廷、予審判事、行政裁判所に証拠として開示される場合があり、これには示談交渉における反対側弁護士への情報開示も含みます。
3. 本記録システムの記録は、同記録に関連する個人から、同記録についての支援を依頼され、当該個人に関連した要求を行う米国会議員に対し、通常使用の範囲として開示される場合がある。
4. 本記録システムの記録は、契約を履行するために同記録を必要とする本庁の契約業者に対し、通常使用の範囲として開示される場合があります。情報を受け取る側は、5. U.S.C. 552a(m)に基づき、1974年プライバシー法修正法の規定要件を遵守しなければなりません。
5. 本記録システム内の、特許協力条約に基づき出願された国際出願に関する記録は、通常使用の範囲として、特許協力条約に従い世界知的所有権機関に開示される場合があります。
6. 本記録システムの記録は、通常使用の範囲として、国家安全保障(35 U.S.C. 181)および原子力法(42 U.S.C. 218(c))に拠る検討目的で、他の連邦政府機関に開示される場合があります。
7. 本記録システムの記録は、通常使用の範囲として、44 U.S.C 2904および2906に基づき、記録管理方法およびプログラムに対する改善を提案するという米一般調達局長官(GSA)の職務の一部として実施される記録監査において、GSAまたはその委任による代理人に対し開示される場合があります。この開示は、上記目的による記録監査を規定するGSA法規およびその他関連する(GSAまたは商務省)指令に従って行われます。この開示は、個人を特定する目的に使用されてはなりません。
8. 本記録システムの記録は、通常使用の範囲として、特許出願公開後(35. U.S.C 112(b))、または特許発行後(35 U.S.C. 151)に一般に開示される場合があります。さらに、同記録が、放棄されたもしくは処理が集結している特許出願に記載されており、かつ公開後の出願、一般審査に公開された出願、または発行済み特許の中で参照されている場合には、37. CFR 1.14の制限に従い、通常使用の範囲として、一般に開示される場合があります。
9. 本記録システムの記録は、法律に違反している、もしくは違反する可能性があると米国特許商標庁により判断された場合、通常使用の範囲として、連邦、州、または地方自治体の警察等に開示される場合があります。

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	T. KURITA, et al.
		Confirmation No.: TBD
Serial No.	:	To be assigned
Filed	:	September 20, 2019
For	:	DISPLAY APPARATUS
Group	:	To be assigned
Examiner	:	To be assigned
Docket No.	:	ASA-10783-09
Customer No.:		24956

INFORMATION DISCLOSURE STATEMENT (IDS)
UNDER § 1.97 AND § 1.98

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

September 20, 2019

Sir:

In the matter of the above-identified application, Applicants are submitting herewith a copy, where required, of the documents listed in the attached form PTO/SB/08a. It is requested that the information be considered by the Examiner during prosecution of the application, and that the references be made of record therein.

Applicants note that:

One or more references cited on the attached PTO/SB/08a was cited by or submitted to the U.S. Patent and Trademark Office in parent application No. 16/424,804, filed May 29, 2019, which is relied upon for an earlier filing date under 35 U.S.C. §120. No copies of the references are attached pursuant to 37 CFR §1.98(d).

The Commissioner is authorized to charge any shortage in the fees due, or credit any overpayment, to Deposit Account No. 50-1417.

If the PTO determines that part(s) of the required content is inadvertently omitted, then it is requested that the Applicant(s) be given additional time and specific identification of such omission(s) to enable full compliance.

Respectfully submitted,

MATTINGLY & MALUR, PC

/John R. Mattingly/
John R. Mattingly
Registration No. 30,293
703-684-1120

Exhibit 1002
TCL v. Maxell - IPR2025-00134
Page 221 of 398

PTO/SB/08a (03-15)
Approved for use through 07/31/2016. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-09-20
First Named Inventor	KURITA, T.
Art Unit	
Examiner Name	
Attorney Docket Number	ASA-10783-09

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20050105007	A1	2005-05-19	CHRISTIAN	
	2	20060098186	A1	2006-05-11	YUMIKI	
	3	20050288058	A1	2005-12-29	CHANDHOK et al.	
	4	20030169370	A1	2003-09-11	EJIMA et al.	
	5	20050107032	A1	2005-05-19	HOMMA et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

	6	20040189827	A1	2004-09-30	Kim et al.	
	7	20010043731	A1	2001-11-22	ITO et al.	
	8	20080180551	A1	2008-07-31	Koike	
	9	20070277216	A1	2007-11-29	Nakajima; Yasuhisa	
	10	20060109283	A1	2006-05-25	Shipman; Samuel E.	
	11	20060098031	A1	2006-05-11	Lai; Jimmy Kwok Lap	
	12	20060078303	A1	2006-04-13	Moon; Seong-jin	
	13	20040150724	A1	2004-08-05	Nozaki, Hirotake	
	14	20050083414	A1	2005-04-21	Hidaka, Yasuhiro	
	15	20090063982	A1	2009-03-05	Cho; Seung-kee	
	16	20060192791	A1	2006-08-31	Schick; Darryl Richard	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

	17	20080180551	A1	2008-07-31	Koike; Toru	
	18	20080138046	A1	2008-06-12	NAKAZAWA	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2004-336476	JP	A	2004-11-25	SONY CORP.		☒
	2	2005-016991	JP	A	2005-01-20	RAILWAY TECHNICAL		☒
	3	1993969	CN	A	2007-07-04	QUALCOMM INC.	Corresponds to U.S. Publication Document 3	☐
	4	2004-112459	JP		2004-04-08	SEIKO EPSON CORP.		☒
	5	2000-032437	JP		2000-01-28	MATSUSHITA ELE. IND. CO.		☒
	6	1774043	CN	A	2006-05-17	MATSUSHITA ELECTRIC IND CO., LTD		☒
	7	2007-13697	JP	A	2007-01-18	VICTOR CO OF JAPAN LTD		☒

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

	8	2005-117182	JP	A	2005-04-28	CANON INC		☒
	9	2007-178949	JP	A	2007-07-12	SHARP CORP		☒
	10	2007-193157	JP	A	2007-08-02	SONY CORP		☒
	11	10-285240	JP	A	1998-10-23	CANON INC		☒
	12	2008-187536	JP	A	2008-08-14	CANON INC		☒
	13	2006-295317	JP	A	2006-10-26	CANON INC		☒
	14	2005-39668	JP	A	2005-02-10	FUJI PHOTO FILM CO. LTD.		☐
	15	2003-333465	JP	A	2003-11-21	Fuji Photo Film Co., Ltd.		☐
	16	2004112460	JP	A	2004-04-08	Seiko Epson Corp.		☐
	17	2008-147958 w/abs	JP	A	2008-06-26	CANON KK		☐

If you wish to add additional Foreign Patent Document citation information please click the Add button | Add |

NON-PATENT LITERATURE DOCUMENTS | Remove |

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	Japan Patent Office office action for application JP2007-269651 (July 10, 2012).	
	2	China State Intellectual Property Office (SIPO) office action for SIPO patent application CN200810170524.X (June 12, 2010).	☒
	3	Chinese Office Action for the counterpart Chinese application 201110229779.0.	☒
	4	Japanese Office Action for the counterpart Japanese application 2012-223808.	☒
	5	Office Action issued on August 9, 2013 in a corresponding Japanese application.	☒
	6	Office Action issued on December 9, 2014 in a corresponding Japanese application 2012-223808, 3 pages.	☐
	7	Japanese Office Action received in corresponding Japanese Application No. 2017-037884 dated December 12, 2017	☐

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	
	Filing Date	2019-09-20
	First Named Inventor	KURITA, T.
	Art Unit	
	Examiner Name	
	Attorney Docket Number	ASA-10783-09

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/John R. Mattingly/	Date (YYYY-MM-DD)	2019-09-20
Name/Print	John R. Mattingly	Registration Number	30,293

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

I, Takayuki Hatanaka, a national of Japan, c/o Asamura Patent Office, p.c. of Tennoz Central Tower, 2-2-24 Higashi-Shinagawa, Shinagawa-ku, Tokyo 140-8776 Japan, declare that to the best of my knowledge and belief the attached is a full, true, and faithful translation into English made by me of the certified copy of Japanese Patent Application No. 2007-269651.

Signed this 14th day of April, 2017.

Takayuki Hatanaka

Takayuki Hatanaka

[Kind of Document] Description

[Title of the Invention] DISPLAY APPARATUS

[Technical Field]

[0001]

The present invention relates to a technique for displaying picture information from an image apparatus connected to a display apparatus through an interface in the display apparatus.

[Background Art]

[0002]

In order to connect an image apparatus with an image display apparatus which is another image apparatus to make viewing and listening of picture, a method using analog connection to transmit picture and audio signals is used. However, with the spread of digital apparatuses, a method using digital connection to encrypt picture and audio signals to be transmitted is used from the viewpoint of prevention of deterioration in picture quality and protection of copyright.

[0003]

The digital transmission using one cable conforming to the IEEE 1394 standard is known as an example thereof. In the digital transmission, mutual authentication is performed between a transmission apparatus and a receiving apparatus and picture and audio signals are multiplexed after the authentication, so that the multiplexed data is subjected to encryption

processing named DTCP to be transmitted.

[0004]

As another example, an HDMI system is known. In the HDMI system, a baseband signal of a high definition picture signal and an audio signal are multiplexed in a time-shared manner and are subjected to encryption processing named HDCP to be transmitted.

[0005]

Such conventional technique in which the digitized picture and audio signals are multiplexed to be transmitted is disclosed in the following patent literature 1, for example.

[0006]

[Patent Literature 1] US2003169370A1

[Disclose of Invention]

[Problem to be resolved by Invention]

[0007]

Since the IEEE 1394 standard is used for a network and has a limited transmission rate at which transmission and receiving can be made, the high definition picture signal having increased information amount cannot be transmitted as it is the baseband signal. Accordingly, the IEEE 1394 standard has a problem that the baseband signal must be compressed to reduce the transmission rate thereof and be transmitted. On the other hand, in the HDMI system, it is not considered that an apparatus which receives the transmitted high definition picture signal records the

received signal.

[0008]

Moreover, these systems are premised on connection between stationary apparatuses installed in homes and it is not sufficiently considered that the image display apparatuses are connected with portable apparatuses such as digital cameras and mobile telephones conveniently.

[0009]

The present invention has been made in view of the above problems and it is an object of the present invention to provide a technique for improving the convenience in case where picture gotten by a portable image apparatus such as, for example, digital camera and mobile telephone is displayed in a display apparatus.

[Means for Solving the Problem]

[0010]

The present invention is characterized by the constituent described in Claims. Namely, a picture acquisition request for getting picture information from an external image apparatus connected through a predetermined interface to a display apparatus is transmitted to the external image apparatus at predetermined intervals, so that a plurality of pieces of picture information can be gotten from the external image apparatus to be displayed.

[0011]

The plurality of pictures gotten thus may be switched at predetermined intervals, for example, to be displayed, so that the plurality of pictures may be displayed in a so-called slide show manner. Furthermore, a plurality of thumbnail pictures may be produced from the plurality of pieces of picture information to be arranged together in one picture screen of a display part.

[Effect of the Invention]

[0012]

According to the present invention, the convenience in case where picture gotten by the portable image apparatus such as, for example, digital camera and mobile telephone is displayed in a display apparatus can be improved.

[Preferred Embodiment of the Invention]

[0013]

Preferred embodiments of the present invention are now described with reference to the accompanying drawings.

[EMBODIMENT 1]

[0014]

Fig. 1 illustrates a first embodiment of the present invention. In Fig. 1, 3 image apparatuses are shown by way of example. One is an image apparatus 100 of, for example, portable type capable of receiving a digital broadcast signal transmitted from a base station antenna 20 of mobile telephones or a

broadcasting transmission tower 30, another is an image display apparatus 200 and still another is a receiver 300 such as, for example, a tuner capable of receiving the digital broadcast signal transmitted from the broadcasting transmission tower 30. The image apparatus 100 and the image display apparatus 200 are connected through, for example, bidirectional interface 10 and the image display apparatus 200 and the receiver 300 are connected through another bidirectional interface 11. Thus, bidirectional communication of picture signal and other information and signal between the apparatuses can be attained.

[0015]

In the embodiment, the portable image apparatus 100 contains digital camera, video camera, mobile telephone, game machine, personal media player and the like, concretely. The requisite constituent elements thereof are not necessarily identical in accordance with the respective aspects, although the embodiment shown in Fig. 1 mainly contains constituent elements requisite for input/output to external apparatuses.

[0016]

In Fig. 1, the base station antenna 20 of the mobile telephones and an antenna 102 of the image apparatus 100 make transmission and reception of signal. When the image apparatus 100 is used as mobile telephone, the image apparatus 100 performs signal

processing as usual mobile telephone. Furthermore, the image apparatus 100 can also receive content such as movie transmitted from the base station antenna 20 of mobile telephone. In this case, the content can be also viewed and listened by a display device and an audio output device included in the image apparatus 100 or by a large display screen of an external image display apparatus 200 through a terminal 101, a connection cable 10 and a terminal 201. Moreover, the content can be stored in a storage medium included in the image apparatus 100 or in a storage medium (for example, memory 121) connected to the image apparatus 100 while being viewed and listened or in order to make viewing and listening of the content later. The memory 121 can be used as a recording medium for recording movie and the like.

[0017]

Similarly, a program broadcasted from the broadcasting transmission tower 30 can be received by a broadcasting receiver 180 of the image apparatus 100 to be viewed and listened by the image apparatus 100 and can be recorded in a storage medium (not shown) included in the image apparatus 100 or in a storage medium (for example, memory 121) connected to the image apparatus 100. Further, the program can be viewed and listened by the image display apparatus 200 through the terminal 101, the connection cable 10 and the terminal 201.

[0018]

Furthermore, the program broadcasted from the broadcasting transmission tower 30 can be received by a receiving antenna 310 connected to the receiver 300 to be inputted to the receiver 300 through an antenna terminal 302 and is subjected to proper signal processing to be viewed and listened by the image display apparatus 200 through a terminal 301, a connection cable 11 and a terminal 202. Another program selected at the same time as the viewing and listening or differently from the viewed and listened program can be also stored in a built-in storage medium (not shown) or in a memory 321 through a memory interface 320. The memory 321 included in the receiver 300 and in which the program is stored can be connected to a memory interface 120 of the image apparatus 100. When the image apparatus 100 is taken out of the home and the program stored in the memory 321 is displayed in a display apparatus (not shown) included in the image apparatus 100, the program recorded in the home can be viewed and listened outside of the home.

[0019]

Moreover, a photographing device 110 and a microphone 112 can be mounted in the image apparatus 100, so that still picture and moving picture can be photographed together with voice by the photographing device and the microphone and can be stored in a storage medium (not shown) or the memory 121 properly

built-in. The picture and voice stored in the built-in storage medium or memory 121 can be viewed and listened by the image display apparatus 200 through the terminal 101, the connection cable 10 and the terminal 201.

[0020]

In the embodiment shown in Fig. 1, wired cables for the connection cables 10 and 11 are connected between the terminal 101 of the image apparatus 100 and the terminal 201 of the image display apparatus 200 and between the terminal 301 of the receiver 300 and the terminal 201 of the image display apparatus 200, respectively. However, when transmission and reception of signal are made between the image apparatuses, it is not necessary to connect therebetween by means of wired cables and connection therebetween may be made by radio. The connection by radio can eliminate troublesomeness in wiring and arrangement of wiring. The method using the connection cable has the merit of being strong to interference such as noise as compared with the connection by radio.

[0021]

Fig. 2 illustrates a concrete configuration of the image apparatus 100 of Fig. 1 according to the first embodiment of the present invention. In Fig. 2, the photographing device 110 takes in moving picture and still picture inputted through an optical system to be converted into electrical signals. A compression circuit 111 uses a compression system such as, for

example, MPEG 2, MPEG 4 or AVC/H. 264 for the moving picture and further uses a compression system such as, for example, JPEG for the still picture to bit-compress the taken-in pictures efficiently.

[0022]

On the other hand, the microphone 112 converts sound wave into electrical signal. A compression circuit 113 uses a compression system such as, for example, MPEG audio to bit-compress the taken-in audio signal efficiently.

[0023]

When still picture is taken by the image apparatus 100, the image apparatus is rotated to take a lateral position or longitudinal position in accordance with an object to be taken so that the picture is taken. A sensor 114 detects that the image apparatus 100 is used in the lateral position or the longitudinal position for photographing. When the image apparatus 100 is used in the longitudinal position, the sensor 114 detects simultaneously whether the right side or the left side of the image apparatus 100 is up. Information detected by the sensor 114 is supplied to a microprocessor 115.

[0024]

A multiplexing circuit 116 is supplied with the bit-compressed picture signal and audio signal from the compression circuits 111, 113 and various information from the microprocessor 115 and multiplexes

them in accordance with a predetermined format. When still picture is taken, the audio signal may be multiplexed in synchronism with photographing of the still picture, although the audio signal is not taken in usually.

[0025]

The various information from the microprocessor 115 contains position information (lateral position, right side in longitudinal position and left side in longitudinal position) detected by the sensor 114, date, exposure information upon photographing and the like.

[0026]

Figs. 3A to 3E show the order of signal processing for each block performed by picture compression generally. As shown in Fig. 3A, the signal processing is performed in order from left to right of an uppermost line or first line of a picture and then performed in order from left to right of a second line of the picture. As shown in Fig. 3B, when the image apparatus 100 is set in the longitudinal position with the right side thereof up, the signal processing is performed from lower side to upper side of a leftmost column and then performed from lower side to upper side of a second column from the left. As shown in Fig. 3C, when the image apparatus 100 is set in the longitudinal position with the left side thereof up, the signal processing is performed from upper side to lower side

of a rightmost column and then performed from upper side to lower side of a second column from the right.

[0027]

When the image apparatus 100 is set in the longitudinal position upon photographing, the photographed picture cannot be displayed in the display device as it is photographed when there is no information indicating which of right or left is up. Accordingly, the position information is multiplexed on the picture signal and audio signal as various information from the microprocessor 115. The compressed signal is extended and the extended picture is subjected to the signal processing of 90-degree rotation using the position information to match output of the display device, so that the picture can be displayed as it is photographed.

[0028]

Moreover, instead of multiplexing the position information, the microprocessor 115 supplies the position information to the compression circuit 111 to control the compression circuit 111 as shown by dotted line directed from the microprocessor 115 to the compression circuit 111 in Fig. 2. Thus, the compression circuit 111 can process the compression signal in accordance with photographing operation of picture and photographing position of the image apparatus 100 to thereby eliminate rotation processing upon reproduction of picture. For example, as shown in

Figs. 3D and 3E, processing of compression signal can be performed from left to right of the upper line of the picture upon photographing and then from left to right of the second line on the basis of the position information, so that the picture can be displayed upon reproduction as it is photographed.

[0029]

When the image apparatus 100 can photograph both of still picture and moving picture, the still picture is photographed in the lateral position or in the longitudinal position as described above. Similarly, there is a user who considers using the image apparatus 100 in the longitudinal position even in case of photographing of moving picture.

[0030]

The signal processing of rotation is not generally provided for moving picture and when the moving picture is displayed by the image display apparatus 200 as it is, the picture rotated laterally is displayed to result in photographing unintended for the user.

Accordingly, when the user rotates the image apparatus 100 to use it in case where the user takes photograph in a moving picture mode, the sensor 114 detects that the image apparatus 100 is used in the longitudinal position and the microprocessor 115 displays a message to call user's attention in a display device 160. The display device 160 is used as

a monitor of picture being photographed by the photographing device 110 and the user can confirm the message easily while photographing, so that when it is not intended, user's attention is called so that the user changes the photographing position to the usual lateral position.

[0031]

Further, simultaneously, when the image apparatus is used in the longitudinal position, the microprocessor 115 sends position information to the compression circuit 111 to control the compression circuit 111. Thus, the compression circuit 111 performs the compression signal processing from left to right of the uppermost line in the longitudinal position as shown in Figs. 3D and 3E, for example, so that picture can be reproduced in accordance with photographing operation of the picture and photographing position of the image apparatus 100. Consequently, the picture can be viewed in the longitudinal position even by a current television set. Detailed description thereof is made later.

[0032]

In Fig. 2, the signal multiplexed by the multiplexing circuit 116 is stored in a storage device 130 through an encryption/decryption circuit 140. The storage device can use, for example, hard disk device, optical disc device, semiconductor memory device and the like and which storage device is used may be

decided in consideration of desired memory capacity, size, ease of taking out a storage medium and price. Moreover, the signal may be stored in the memory 121 through a signal processing circuit 124 and the memory interface 120.

[0033]

Since a photographer has the copyright on information photographed by the photographer personally, the information is not required to be encrypted usually when it is stored. However, since there is a possibility that the information stored in the storage device 130 is lost, an output signal of the multiplexing circuit 116 is encrypted by the encryption/decryption circuit 140 and then stored in the storage device 130 or the memory 121, so that the stability can be enhanced.

[0034]

The image apparatus 100 can sometimes accept a removable memory and sometimes has the mobile telephone function and the radio LAN function. The memory interface 120 is an interface for the removable memory 121. Still picture, moving picture and audio content can be recorded in the memory 121 by means of another apparatus and the memory 121 can be connected to the interface 120, so that the content recorded in the memory 121 can be recorded in the storage device 130 through the signal processing circuit 124 and the encryption/decryption circuit 140.

[0035]

At this time, the signal processing circuit 124 detects whether the content recorded in the memory 121 is copyrighted and a copy thereof is limited or not and the content is encrypted by the encryption/decryption circuit 140 in accordance with conditions to be moved to the storage device 130.

[0036]

Similarly, even when still picture, moving picture and audio content are received by a radio interface 122 and inputted, the still picture, moving picture and audio content are recorded in the storage device 130 through the signal processing circuit 124 and the encryption/decryption circuit 140. Even in this case, the still picture, moving picture and audio content are encrypted by the encryption/decryption circuit 140 in accordance with the protection of copyright for content and conditions of limitation of copy if necessary.

[0037]

When the content stored in the storage device 130 is reproduced to be viewed and listened, an input key or a remote-control device not shown is used to select the content desired to be viewed and listened and the selected content is read out from the storage device 130. The read-out content is decrypted by the encryption/decryption circuit 140 and are divided into picture signal and audio signal by a demultiplexing

circuit 141.

[0038]

Furthermore, when broadcast is received by the broadcasting receiver 180, the received broadcast encrypted for broadcasting is decrypted by the encryption/decryption circuit 140 and is then subjected to encryption processing for storage by the encryption/decryption circuit 140 if necessary to be stored in the storage device 130 or the memory 121. When received broadcast is viewed and listened directly, the received broadcast is divided into picture signal and audio signal by the demultiplexing circuit 141.

[0039]

The divided and compressed picture signal is extended by an extension circuit 142 and inputted to a signal processing circuit 150. The signal processing circuit 150 converts scanning lines thereof in synchronism with scanning lines of the display device 160 and supplies the picture signal to the display device 160.

[0040]

The divided and compressed audio signal is extended by an extension circuit 143 and inputted to an audio output device 161. In this manner, since the image apparatus 100 includes the display device 160 and the audio output device 161, the image apparatus 100 can make viewing and listening of picture and sound

without connecting the image display apparatus externally. When there is any time difference in picture display and audio output due to difference in time required for the extension processing of the picture signal and the audio signal and the presence of the conversion processing of scanning lines, the feeling of wrongness is caused. Since the feeling of wrongness is increased when it takes time to perform the picture signal processing and the audio signal precedes the picture signal, the audio signal is delayed in the extension processing, for example, so that a so-called lip synchronization is performed. Thus, the feeling of wrongness due to deviation or shift of the picture signal and the audio signal can be eliminated.

[0041]

In contrast, when the picture signal and the audio signal are viewed and listened by the external image display apparatus 200, the scanning lines treatable by the image display apparatus 200 are confirmed and when the scanning lines coincide with the scanning lines of the picture signal to be displayed, the picture signal is outputted as it is. When both of the scanning lines are different, the signal processing circuit 150 converts the scanning lines of the picture signal into requisite scanning lines and a multiplexing circuit 170 then multiplexes the time axis of the audio signal processed by the signal processing circuit 151.

The signal processing circuit 151 compresses the audio signal in time axis during the period corresponding to the blanking period of the picture signal and performs time adjustment for lip synchronization if necessary. The picture signal and the audio signal multiplexed by the multiplexing circuit 170 are supplied to an encryption circuit 171 to be subjected to encryption processing required to be transmitted between the image apparatus 100 and the image display apparatus 200, so that the picture signal and the audio signal are supplied to the image display apparatus 200 through an interface 172 and the terminal 101.

[0042]

As described above, when the image apparatus 100 is used in the longitudinal position in spite of moving picture and the compression signal processing is performed as shown in Figs. 3D and 3E, the signal processing circuit 150 converts the scanning lines into scanning lines in number capable of being photographed by image display apparatus 200. In this case, parts where picture is not displayed are produced on right and left sides of the display screen. The picture is displayed in the display device 160 in a so-called side-panel state.

[0043]

Further, when the signal outputted from the terminal 101 is stored in a receiving side thereof, the compressed signal is outputted without extending the

compressed signal. In this case, the compressed signal is inputted to the encryption circuit 171 from the encryption/decryption circuit 140 to be subjected to encryption required for transmission and is outputted through the interface 172 and the terminal 101.

In the foregoing description, the picture signal and the audio signal taken in from the microphone 112 and the content inputted from the memory 121 and the radio interface 122 are once stored in the storage device 130 and then reproduced. However, when the storage is not necessary or when direct viewing and listening are made, the picture and signals may be processed by the demultiplexing circuit 141 without performing encryption and encryption/decryption processing for storage in the encryption/decryption circuit 140. In this manner, the display device 160 and the audio output device 161 included in the image apparatus 100 can be used to make viewing and listening of picture and voice or the picture and voice can be viewed and listened by the receiver connected externally through the output interface 172.

[0044]

Fig. 4 illustrates concrete configuration of the image display apparatus 200 shown in Fig. 1. The like elements are designated by the like reference numeral and description thereof is omitted.

[0045]

First, description is made to the case where

a signal inputted from the terminal 201 or 202 is a baseband signal of uncompressed moving picture. The signal inputted from the terminal 201 or 202 is supplied to an encryption/decryption circuit 211 through an input/output interface 210. The encryption/decryption circuit 211 makes encryption corresponding to that of the encryption circuit 171 shown in Fig. 2 and decrypts the signal encrypted by the encryption circuit 171. The decrypted signal is supplied to a demultiplexing circuit 250 and the picture and audio signals are supplied to signal processing circuits 251 and 252, respectively. The signal processing circuit 251 performs conversion of scanning lines and resolution in accordance with the number of pixels capable of being displayed in a display 260. The signal processing circuit 252 extends the time axis of the audio signal multiplexed by compressing the time axis during the blanking time of the picture signal and subjects the audio signal to the lip synchronization and the sound quality adjustment if necessary. The output signals of the signal processing circuits 251 and 252 are supplied to the display 260 and an audio output device 270 to be viewed and listened.

[0046]

Next, description is made to the case where the compressed moving picture signal is inputted from the terminal 201 or 202. The purpose of inputting the

compressed signal is to store the moving picture signal in a storage device 230 included in the image display apparatus 200.

[0047]

The signal inputted from the terminal 201 or 202 is supplied to the encryption/decryption circuit 211 through input/output interface 210. The encryption/decryption circuit 211 corresponds to the encryption circuit 171 shown in Fig. 2 and decrypts the signal encrypted by the encryption circuit 171. The decrypted signal is supplied to an encryption/decryption circuit 240. The encryption/decryption circuit 240 reads out copy control information of the content to be stored and performs encryption processing for storage in accordance with the copy control information. The encrypted signal is inputted to the storage device 230 to be stored as it is compressed.

[0048]

When viewing and listening are performed while storing the compressed signal inputted from the terminal 201 or 202, the signal corresponding to the compressed signal decrypted by the encryption/decryption circuit 211 is inputted to a demultiplexing circuit 241 from the encryption/decryption circuit 240. Then, the demultiplexing circuit 241 divides the signal into the compressed picture and audio signals. The divided

picture and audio signals are extended by extension circuits 242 and 243, respectively, to be returned to baseband signals and then supplied to signal processing circuits 251 and 252. Similarly, the picture and audio signals are supplied to the display 260 and the audio output device 270, respectively, to be viewed and listened.

[0049]

When the content stored in the storage device 230 is reproduced to be viewed and listened, title of the content stored in the storage device 230 is displayed in the display to be selected and signal of the selected content is inputted to the encryption/decryption circuit 240 from the storage device 230. The signal of the selected content is decrypted by the encryption/decryption circuit 240 to be supplied to the demultiplexing circuit 241. The similar processing is then performed so that the content can be viewed and listened.

[0050]

Similarly, the content stored in a memory 221 can be also reproduced. Similarly to reproduction of the content stored in the storage device 230, the content desired to be viewed and listened is selected from the contents stored in the memory 221 and the selected content is supplied to the encryption/decryption circuit 240 through a memory interface 220 and a signal processing circuit 224. The

signal processing circuit 224 performs processing required to read out the content from the memory 221 and supplies the compressed and multiplexed picture and audio signals to the encryption/decryption circuit 240. Subsequent signal processing is the same as the case where the content is read out from the storage device 230.

[0051]

Moreover, the content can be also stored in the memory 221 in the same manner as the case where the content is stored in the storage device 230. Detailed description of the processing in this case is omitted, although the content encrypted by the encryption/decryption circuit 240 is stored in the memory 221 through the signal processing circuit 224 and memory interface 220.

[0052]

Even when the content transmitted by radio is viewed and listened and stored, the same processing is performed. The compressed content transmitted by radio is inputted to the encryption/decryption circuit 240 through a radio interface 222 and the signal processing circuit 224. The encryption/decryption circuit 240 decrypts the content subjected to encryption processing required for radio transmission. The subsequent processing is the same as the reproduction processing from the storage device 230.

[0053]

Even when the uncompressed baseband signal is inputted from the terminal 201 or 202, the content can be stored in the storage device 230 or the memory 221 efficiently. The operation in this case is now described.

[0054]

The content inputted from the terminal 201 or 202 is divided into picture signal and audio signal through the input/output interface 210, the encryption/decryption circuit 211 and the demultiplexing circuit 250. The divided picture signal and audio signal are inputted to compression circuits 281, 282 through a copy control circuit 280. The copy control circuit 280 reads out copy control information multiplexed on the inputted content to judge whether the content can be copied or not. The copy control information may be a bit assigned to a designated part or may be multiplexed on the picture or audio information itself by means of the digital watermarking technique.

[0055]

The compression circuit 281 compresses the picture signal by means of the compression system such as, for example, MPEG2, MPEG4 and AVC/H. 264. Further, the compression circuit 282 compresses the audio signal by means of the compression system such as, for example, MPEG audio. The compressed picture and audio signals are supplied to a multiplexing circuit 283 to

be multiplexed and are then supplied to the encryption/decryption circuit. The subsequent operation is the same as above and the signals can be stored in the storage device 230 or the memory 221. Thus, the content can be recorded for a long time in accordance with copyright information efficiently.

[0056]

In the embodiment described so far, description has been made to the case where the picture and audio signals outputted from the image apparatus 100 are transmitted to the image display apparatus. Furthermore, the case where two image apparatuses 100 are connected to each other in the embodiment is now described with reference to Fig. 6. In Fig. 6, image apparatuses 1 and 2 are both constructed by the image apparatus 100 of the portable type such as, for example, mobile telephone and digital camera. A connection cable 10 which is a bidirectional interface connects between respective terminals 101. With such configuration, the content such as movie transmitted from the base station antenna 20 of mobile telephone and received by the image apparatus 1 can be transmitted to the image apparatus 2 through the connection cable 10 and can be displayed in the display device 160 of the image apparatus 2. Further, the audio output device 161 of the image apparatus 2 can be used to output the audio signal. Moreover, when the content stored in the storage device 130 of the image

apparatus 1 is transmitted, desired content can be read out from the storage device 130 on the basis of control signal from the image apparatus 2 and can be decrypted by the encryption/decryption circuit 140. Then, the encryption circuit 171 subjects the content to encryption processing required to transmit the content externally and then the content is outputted through the interface 172 and the terminal 101. Control signals from the image apparatus 2 at this time contain mutual authentication for confirming that the image apparatuses 1 and 2 are regular apparatuses, synchronous control signal for synchronizing with signal processing, transmission request signal and identification signal indicating the image apparatus 1. Furthermore, the control signal is also transmitted from the image apparatus 1 to the image apparatus 2.

[0057]

The signals which are transmitted and received between the image apparatuses 1 and 2 may be not only signal received from the base station antenna 20 of mobile telephone but also broadcast wave received from the broadcasting receiver 180, content stored in the storage device 130 and content stored in the memory 121.

[0058]

The image apparatuses 1 and 2 are the same image apparatus 100, for example. The image apparatuses are connected to each other by means of the

bidirectional interface as described above. Information such as picture and audio signals may be transmitted from the image apparatus 1 to the image apparatus 2 and conversely information such as picture and audio signals may be also transmitted from the image apparatus 2 to the image apparatus 1. The direction of transmitting information from the image apparatus 1 to the image apparatus 2 is defined to "up" and conversely the direction of transmitting information from the image apparatus 2 to the image apparatus 1 is defined to "down". It is a matter of course that opposite directions are defined to "up" and "down". The bidirectional interface for connecting the image apparatuses 1 and 2 to each other has asymmetric transmission rates in up and down directions, that is, the transmission rates are different in up and down directions. When information such as picture and audio signals of wide band is transmitted in the up direction, that is, from the image apparatus 1 to the image apparatus 2, a control signal of narrow band (as compared with picture and audio signals) is transmitted from the image apparatus 2 to the image apparatus 1. To the contrary, when information such as picture and audio signals is transmitted in the down direction, that is, from the image apparatus 2 to the image apparatus 1, a control signal of narrow band is transmitted from the image apparatus 1 to the image apparatus 2. Accordingly, the transmission rate in the

direction of transmitting picture and audio signals of wide band is set to be high whereas the transmission rate in the direction of transmitting the control signal of narrow band is set to be low. In this manner, in the embodiment, since information and signal having different bands in the up and down directions are transmitted between a plurality of different image apparatuses, the picture signal requiring the wide band for transmission and the control signal capable of being transmitted in the narrow band can be used in the limited frequency band simultaneously, so that the use efficiency of radio waves is improved. Further, the control signal is transmitted not only from one apparatus but also from the opposite apparatus if necessary.

[0059]

Fig. 7 illustrates a schematic diagram of the image display apparatus 200 and the image apparatus 100 connected by radio in the first embodiment. In Fig. 7, for simplification of description, other elements except the input/output interface 210 and the interface 172 are not shown. In this manner, the bidirectional interface for connecting the image apparatuses to each other is not limited to wired cable and the bidirectional interface may be constructed by radio. In this case, the degree of freedom for disposition of apparatuses is increased.

[0060]

Fig. 8 illustrates the image apparatus 100 and the image display apparatus 200 connected by radio. In Fig. 8, the image apparatus 100 and the image display apparatus 200 are the same as those shown in Figs. 1 and 2. For simplification of description, in Fig. 8, the only interface circuit 172 is shown as constituent elements of the image apparatus 100 and other constituent elements are not shown. Furthermore, the only input/output interface 210 is shown for the image apparatus 200 and other constituent elements are not shown. The interface circuit 172 and the input/output interface 210 are both the bidirectional interface and have asymmetric transmission rates in the up and down directions similarly to the above. In Fig. 8, channels for transmitting picture signal, audio signal and control signals indicating protection of copyright for content and restriction conditions of copy are formed between antennas 81 and 84 and between antennas 82 and 85. In contrast, the channel between antennas 83 and 86 is to transmit an inter-apparatus control signal.

Moreover, bit selection circuits 811 and 812 are supplied with picture signal, audio signal, control signals indicating protection of copyright for content and restriction conditions of copy and inter-apparatus control signal. In regard to the above-mentioned modulation/demodulation system, the QPSK modulation/demodulation system has high tolerance to

transmission error as compared with the 64-QAM modulation/demodulation system. On the other hand, in regard to the transmission efficiency, the 64-QAM modulation/demodulation system has the efficiency higher than the QPSK modulation/demodulation system. Description is made to the case where picture and audio signals and control signals indicating protection of copyright for content and restriction conditions of copy are transmitted from the image apparatus 100 to the image display apparatus 200. The direction of transmitting information from the image apparatus 100 to the image display apparatus 200 is defined to be up and conversely the direction of transmitting information from the image display apparatus 200 to the image apparatus 100 is defined to be down.

[0061]

In order to make the image apparatus 100 transmit information, a carrier wave detection circuit (not shown) examines whether use channels are already occupied by other apparatuses or not. Detection of carrier wave is performed by detecting whether the carrier wave exists in a predetermined frequency band during a predetermined period or not. When the carrier wave detection circuit detects that other apparatuses use the channels, the carrier wave detection circuit examines an idle state of channel again after a while. Thereafter, when the detection circuit detects that the channel is not used by other apparatus, the detection

circuit notifies the microprocessor 115 of the image apparatus 100 that the channel is empty. The microprocessor 115 outputs a channel use request signal as the inter-apparatus control signal through a QPSK modulation/demodulation circuit 803 to ensure the use right of the channel. Then, the microprocessor 115 sends a transmission request signal to the bit selection circuit 811. An error control circuit 843 adds error control bit for detection and correction of error to the transmission request signal to be transmitted to the QPSK modulation/demodulation circuit 803. The QPSK modulation/demodulation circuit 803 subjects signal to QPSK modulation and transmits radio signal to the image display apparatus 200 through the antenna 83. On the other hand, the image display apparatus 200 subjects the radio signal received by the antenna 86 to QPSK demodulation by means of a QPSK modulation/demodulation circuit 806 and subjects the demodulated signal to error detection and correction control by means of an error control circuit 847, so that the image display apparatus 200 outputs the inter-apparatus control signal to be transmitted to the bit selection circuit 812.

[0062]

The microprocessor of the image display apparatus 200 decodes the received inter-apparatus control signal and receives apparatus category information (for identifying a category indicating

whether the apparatus is a display apparatus or a recording apparatus) concerning the image apparatus 100 and an apparatus identification number of the image apparatus 100 together with the transmission request signal from the image apparatus 100. Inquiry as to whether connection to the image apparatus 100 is made or not is displayed in the display screen of the image display apparatus 200 and accordingly the user issues an instruction for permitting the connection in response to the displayed inquiry by means of an input device such as a remote-control device of the image display apparatus 200. Then, mutual apparatus category information and identification numbers for identifying mutual apparatuses are exchanged between the image apparatus 100 and the image display apparatus 200 and information for observing the protection of copyright for content and restriction conditions of copy is also exchanged, so that when there is no problem, mutual connection is permitted. When the mutual apparatuses are input-only apparatus or when connection has no meaning as in case of an output-only apparatus or when the protection of copyright for content or restriction conditions of copy are violated, connection is stopped and indication to that effect is displayed in the respective apparatuses. The following description is made to the case where there is no problem in regard to the protection of copyright for content and the restriction conditions of copy.

[0063]

Two bits from the most significant bit (MSB) of the picture signal among picture signal, audio signal and control signal indicating protection of copyright for content and restriction conditions of copy relative to the signals are selected and control bit for error detection and correction is added to the two bits by an error control circuit 841 to be transmitted to a QPSK modulation/demodulation circuit 801. The QPSK modulation/demodulation circuit 801 subjects this signal to QPSK modulation and sends out the radio signal from the antenna 81. An error control circuit 842 adds control bit for error detection and correction to remaining bits from third to eighth bits to be transmitted to a 64-QAM modulation/demodulation circuit 802. This signal is subjected to 64-QAM modulation by the 64-QAM modulation/demodulation circuit 802 to be transmitted from the antenna 82 as a radio signal.

[0064]

In the image display apparatus 200, the QPSK modulation/demodulation circuit 804 subjects the signal received by the antenna 84 to QPSK demodulation and an error control circuit 845 subjects the signal to error control. Then, the higher-order two bits of the picture signal is supplied to the bit control circuit 812. A 64-QAM modulation/demodulation circuit 805 subjects the remaining signal received by the antenna

85 to 64-QAM demodulation and an error control circuit 846 subjects the signal to error control. Then, the signal is supplied to the bit control circuit 812.

[0065]

The inter-apparatus control signal is now described. When the inter-apparatus control signal is transmitted in the down direction, that is, from the image display apparatus 200 to the image apparatus 100, the inter-apparatus control signal is transmitted from the bit selection circuit 812 through the error control circuit 847 to the QPSK modulation/demodulation circuit 806, in which the signal is modulated to be outputted from the antenna 86. The image apparatus 100 receives the signal by the antenna 83 to be supplied to the QPSK modulation/demodulation circuit 803 through the QPSK modulation/demodulation circuit 83, in which the signal is subjected to QPSK demodulation and the demodulated signal is subjected to error detection and correction by the error control circuit 843 to be transmitted to the bit selection circuit 811. To the contrary, when the inter-apparatus control signal is transmitted in the up direction, that is, from the image apparatus 100 to the image display apparatus 200, the inter-apparatus control signal is transmitted from the bit selection circuit 811 through the error control circuit 843 to the QPSK modulation/demodulation circuit 803, in which the signal is modulated to be outputted from the antenna 83. The image display apparatus 200 receives

the signal by the antenna 86 to be supplied to the QPSK modulation/demodulation circuit 806, in which the signal is subjected to QPSK demodulation and the demodulated signal is subjected to error detection and correction by the error control circuit 847 to be transmitted to the bit selection circuit 812. By configured as above, the apparatuses can effectively reduce malfunction for the inter-apparatus control signal important in construction of the system even in circumstances having increased noise.

[0066]

In the configuration of the embodiment, the higher-order two bits of the digital signal can be transmitted with excellent noise-resistant performance although the transmission rate thereof is low. That is, two bits of the picture signal are taken out in order from the most significant bit (MSB) thereof by utilizing the fact that higher bits of the picture signal greatly influences the picture quality and the transmission path using the QPSK modulation is assigned to the information to reduce deterioration of the picture quality. Incidentally, in the system in which audio information is more important than picture information, the transmission path using the QPSK modulation can be assigned to two important bits (for example, high 2 bits) of the audio signal.

[0067]

Moreover, when man recognizes a picture,

there is a tendency of being relatively unconcerned about the high frequency components in the horizontal and vertical directions of the picture screen as compared with the low frequency components thereof. Further, man's eyes tend not to follow quick motion of an object moving on the picture screen. The tendencies may be utilized to divide the frequency components in the horizontal direction of the picture screen into the low frequency components and the high frequency components, so that the QPSK modulation may be used for the low frequency components and the 64-QAM modulation may be used for the high frequency components. By doing so, noise tolerance is enhanced for important information, so that the whole transmission capacity can be ensured in the limited transmission band. Similarly, the frequency components in the vertical direction of the picture screen may be also divided into the low frequency components and the high frequency components, so that the QPSK modulation may be used for the low frequency components and the 64-QAM modulation may be used for the high frequency components. Thus, noise tolerance is enhanced for important information, so that the whole transmission capacity can be ensured in the limited transmission band. Further, treatment of the frequency components in the horizontal direction of the picture screen can be combined with that in the vertical direction, so that noise tolerance can be enhanced for desired

important information.

[0068]

In the foregoing description, the error control circuits 841, 842 and 843 add error control information to bits inputted thereto, although bits inputted to the error control circuits 841, 842 and 843 may be treated as one word, so that error control information may be added to this one word. By configured thus, the error control circuit can be formed simply.

[0069]

In the configuration shown in Fig. 8, for example, a plurality of still pictures photographed by the image apparatus 1 are switched at predetermined periods of one second, for example, to be transmitted to the image display apparatus 200 or the image apparatus 2, so that the plurality of transmitted still pictures can be displayed in the image display apparatus 200 or the image display 2. The image display apparatus 200 or the image display 2 transmits a picture request signal for transmitting picture to the image apparatus 1, so that the image apparatus 1 switches the plurality of still pictures to transmit the still picture to the image display apparatus 200 or the image apparatus 2 in response to the picture request signal. By configured thus, when the picture cannot be reproduced by the image display apparatus 200 or the image apparatus 2, the picture request signal is

transmitted to the image apparatus 1 again, so that the transmission can be repeated until the picture can be received correctly. Even in this case, the picture request signal uses the QPSK modulation and accordingly noise-resistant performance is satisfactory.

[0070]

Referring now to Fig. 10, an embodiment for getting a picture from the image apparatus 1 by means of the picture request signal to display the gotten picture in the display apparatus is described. In the embodiment, the plurality of still pictures photographed by the image apparatus 1 are switched to be displayed in the image display apparatus 200 by way of example, although the pictures may be displayed in the image apparatus 2 similarly.

[0071]

Fig. 10 illustrates an embodiment of the display apparatus constructed to display still pictures from the image apparatus 1. In this embodiment, a television display apparatus having a HD display 1002 is used as the display apparatus. In Fig. 10, an image apparatus 1020 is concretely digital camera, mobile telephone, game machine, personal medium player or the like. In the embodiment, the image apparatus 1020 transmits still pictures to the image display apparatus 200 (television display apparatus) through two interfaces. One is HDMI for transmitting still picture as baseband picture information and the other is USB

for transmitting still picture as compressed picture information. The compressed picture information transmitted by USB is supposed to be compressed in JPEG format.

[0072]

Configuration and operation of the image apparatus 1020 are first described. When the image apparatus 1020 transmits still picture of compressed picture information, the image apparatus 1020 reads out still picture compressed in JPEG format from a memory 1018 formed by a flash memory, for example. The still picture is supplied to a USB terminal 1012 constituting a first input part of the image display apparatus 200 from a USB mass storage interface circuit 1019 without performing signal processing such as extension processing.

[0073]

On the other hand, when still picture of baseband picture information is transmitted, the image apparatus 1020 first reads out the still picture from the memory 1018. Since the still picture is compressed in the JPEG format, the still picture is subjected to signal processing for extending the compressed picture by means of a signal processing circuit 1016 to produce baseband picture information. The baseband picture information is transmitted from HDMI interface circuit 1017 to HDMI terminal 1005 constituting a second input part of the image display apparatus 200.

[0074]

Then, configuration and operation of the image display apparatus 200 is described. The still picture of compressed picture information inputted to the USB terminal 1012 constituting the first input part is supplied to an image processing circuit 1006 through a USB host interface circuit 1011. The image processing circuit 1006 includes JPEG data file access circuit 1010, JPEG decoder circuit 1009, resize and effect addition circuit 1008 and image stream signalization circuit 1007. The still picture inputted to the USB terminal 1012 is supplied to the JPEG decoder circuit 1009 through the JPEG data file access circuit 1010, in which the still picture compressed in the JPEG format is decoded, that is, extended. The extended still picture is supplied to the resize and effect addition circuit 1008 to change the display size (numbers of pixels in horizontal and vertical directions) and is subjected to desired effect processing (for example, rotation processing). The still picture subjected to change of size and the like by the resize and effect addition circuit 1008 is converted into a picture signal for display by the image stream signalization circuit 1007 and is supplied to the HD display 1002 through a switching circuit 1003. Thus, the compressed still picture inputted through the USB host interface circuit 1011 is displayed in the HD display 1002.

[0075]

In the embodiment, the first input part to which the compressed picture information is inputted includes LAN terminal 1014 capable of being connected to various network 1015 such as radio LAN, wired LAN and Internet. Accordingly, in the embodiment, the compressed picture can be obtained through not only USB interface but also network 1015. The compressed picture information inputted to the LAN terminal 1014 is supplied to the image processing circuit 1006 through LAN and DLNA (Digital Living Network Alliance) interface circuit. The processing in the image processing circuit 1006 is the same as the processing to the compressed picture information inputted through the USB terminal 1012 as described above and repeated description thereof is omitted.

[0076]

On the other hand, the still picture of baseband picture information inputted to the HDMI terminal 1005 constituting the second input part is subjected to predetermined decode processing (encryption release processing) by means of HDMI interface/decoder circuit 1004. The still picture subjected to the encryption release processing is supplied to the HD display 1002 through the switching circuit 1003 and is displayed in the HD display 1002.

[0077]

The switching circuit 1003 selects any one of

the still picture inputted to the HDMI terminal 1005 and the still picture inputted to the USB terminal or LAN terminal 1014 to be supplied to the HD display 1002 and is controlled by operator's operation of the remote-control device for the image display apparatus 200, for example. Accordingly, the user can select the compressed picture information or baseband picture information in accordance with user's desire to display it in the HD display 1002.

[0078]

In the embodiment, HDMI and USB interfaces are used as the interfaces for connecting to the image apparatus 1020, although interfaces having other standards may be used.

[0079]

Supplementary description is made to the HDMI interface before operation of the embodiment based on the image request signal is described. Fig. 16 shows a configuration example of the HDMI interface composed of transmission and receiving sides mainly. The transmission side includes a transmission part 1601 and a transmission side control part 1603 for controlling the transmission part 1601. The transmission part 1601 encodes picture signals (Y, Pb and Pr) and audio signal to be outputted to the receiving part 1604.

Moreover, the transmission part 1601 includes TMDS encoder circuit 1602, which converts the picture signals (Y, Pb and Pr) and the audio signal into serial

picture data and serial audio data, respectively. On the other hand, the receiving side includes a receiving part 1604 and a receiving side control part 1606 for controlling the receiving part 1604. The receiving part 1604 decodes the picture data and the audio data transmitted from the transmission part 1601 by TMDS decoder 1605 to reproduce baseband picture data and audio data. A CEC line 1607 constitutes an apparatus control line for transmitting control signal for apparatus and display specification information named DDC is transmitted through DDC line 1608. Further, the receiving side transmits HPD (Hot Plug Detect) signal 1609 indicating that transmission-side apparatus is connected to receiving side apparatus.

[0080]

Fig. 17 shows an example of a format of a remote-control code transmitted through the CEC line 1607. As shown in Fig. 17, the remote-control code is of 48-bit length and includes a maker code of 16 bits for identifying a maker and an apparatus code of 12 bits for identifying an apparatus such as an apparatus kind number and a manufacture's serial number of the apparatus. The format of the remote-control code may be any format except Fig. 17. Furthermore, the remote-control code is not limited to 48-bit length and may be of any bit length. Next, an example of the method of transmitting the remote-control code through the CEC line is described with reference to Fig. 18. First,

when the image apparatus is connected to the display apparatus, the HPD signal 1609 indicating that the image apparatus has been connected to the display apparatus is transmitted from the display apparatus to the image apparatus. Then, the display apparatus 200 reads in the maker code and the apparatus code of the image apparatus through the CEC line 1607 of HDMI cable. The read-in maker code and apparatus code are stored in the display apparatus 200 together with a receiving interface number. The maker code and the apparatus code may be stored in memory of microcomputer not shown, for example, of the display apparatus 200. When another HDMI cable is connected, the HDMI cable is subjected to the same processing, in which the maker code and the apparatus code thereof are stored in the display apparatus together with a receiving interface number. The read-in maker code and apparatus code are stored as a table shown in Fig. 19. By configured thus, even when makers of the display apparatus 200 and the image apparatus 1020 connected to each other are different, for example, communication therebetween can be established with reference to the stored maker code and apparatus code, so that the image apparatus 1020 can control the display apparatus 200 and the display apparatus 200 can transmit display specification information (DDC) to the image apparatus 1020.

[0081]

Returning to Fig. 10 again, operation of the

embodiment based on the image request signal is described. In Fig. 10, the user operates the input device such as remote-control device and keyboard of the image display apparatus 200, so that the input device issues a control command to change the mode to a display mode for displaying the still picture as described above. In accordance with the control command, the JPEG data file access circuit 1010 of the image display apparatus 200 transmits the image request signal so that the still picture of compressed picture information is outputted to the external image apparatus 1020 through the USB host interface circuit 1011 and the USB terminal 1012. In other words, in this example, the JPEG data file access circuit 1010 functions as a transmission part for transmitting the image request signal to the external image apparatus 1020. The image request signal is transmitted at predetermined intervals (for example, at intervals of one second) from the image display apparatus 200 to the image apparatus 1020. The image apparatus 1020 outputs the still picture data stored in the memory 1018 through the USB mass storage interface circuit 1019 in response to the image request signal. The USB host interface circuit 1011 takes in the still picture data from the USB terminal 1012. Thereafter, the JPEG decoder circuit 1009 decodes the read-in JPEG data to be restored to original picture data. The picture data is subjected to resize and effect processing by means

of the resize and effect addition circuit 1008 to be converted into the picture signal for display by the image stream signalization circuit 1007 and be displayed in the HD display 1002.

[0082]

The processing from the transmission of the image request signal to the conversion processing of the picture signal for display by the image stream signalization circuit 1007 is repeated at predetermined intervals (for example, one second) to thereby perform the picture display method named a slide show of changing over a plurality of still pictures obtained from the image apparatus 1020 at predetermined intervals and displaying them. It is a matter of course that the interval is not limited to one second and may be any intervals and can be changed properly by the user by means of the input device. The image request signal may be outputted repeatedly until all still pictures are read out from the image apparatus 1020, although a predetermined period (for example, ten second to one minute) may be defined and the image request signal may be transmitted at predetermined intervals during the predetermined period.

[0083]

Furthermore, the microcomputer (not shown) of the image display apparatus 200 can also transmit the image request signal to the image apparatus 1020 through the HDMI interface/decoder circuit 1004 and the

HDMI terminal 1005. In this case, since the HDMI interface is an interface of transmitting moving picture, moving picture which is not changed temporally is transmitted as far as there is no specified control.

[0084]

First, the user operates the input device such as remote-control device and keyboard of the image display apparatus 200 to output the control command from the input device so that the mode is changed to the display mode. The HDMI interface/decoder circuit 1004 transmits the image request signal to the image apparatus 1020 through the CEC line of the HDMI terminal 1005 in response to the control command. That is, in this example, the HDMI interface/decoder circuit 1004 functions as the transmission part for transmitting the image request signal to the external image apparatus 1020. The image request signal is transmitted from the image display apparatus 200 to the image apparatus 1020 at predetermined periods (for example, at intervals of one second) during several seconds to one minute, for example, in the same manner as above. The image apparatus 1020 converts still picture data stored in the memory 1018 into a signal format displayable as moving picture by means of the signal processing circuit 1016 in response to the image request signal to be outputted through the HDMI interface circuit 1017.

The image display apparatus 200 receives the

data through the HDMI terminal 1005 and the HDMI interface/decoder circuit 1004 to be displayed in the HD display. This processing is performed repeatedly at predetermined intervals, so that the picture display named a slide show can be performed similarly. The time interval may be changed properly by the user. The image request signal may be outputted repeatedly until all still pictures are read out from the image apparatus 1020 or the image request signal may be transmitted at predetermined intervals during a predetermined period as described above.

[0085]

Furthermore, the method of displaying the picture information from the image apparatus 1020 in the image display apparatus 200 has been described so far, although even when the picture information exists in the network 1015, the slide show display can be performed in the same manner. In this case, the JPEG data file access circuit 1010 of the image display apparatus 200 receives the control command from the input device and transmits it to the network 1015 through the LAN and DLNA interface circuit 1013 and the LAN terminal 1014. At this time, an address (for example, IP address) in the network of the image apparatus connected to the network is added to the image request signal. The picture signal corresponding to the address added to the image request signal is transmitted as compressed picture information

responsive to the image request signal. The still picture data is supplied through the LAN terminal 1014 and the LAN and DLNA interface circuit 1013 to the JPEG decoder circuit 1009. The subsequent processing is the same as the processing for the still picture inputted to the USB terminal 1012 and accordingly repeated description thereof is omitted.

[0086]

In order to realize the network function, in the embodiment, the LAN terminal 1014 and the LAN and DLNA interface 1013 are provided, although the HDMI interface or the USB interface may be expanded to have the same function.

[0087]

Fig. 11 illustrates another embodiment according to the present invention. In Fig. 11, the same constituent elements as those shown in Fig. 10 are designated by the same reference numerals as those of Fig. 10. The configuration of Fig. 11 is different from that of Fig. 10 in that signal routes from the USB terminal 1012 and the LAN terminal 1014 in the display apparatus of Fig. 10 are deleted. Furthermore, the configuration of the image apparatus 1020 is also different in that a PTP (protocol for connecting a digital camera and a personal computer (PC) through USB to make transfer and control of picture) control circuit 1101 and a LAN interface circuit 1102 are newly provided instead of the USB mass storage interface

circuit 1019 in the image apparatus 1020. Operation for the route of the HDMI terminal is the same in Figs. 10 and 11, so that the slide show can be performed. When the configuration of Fig. 11 is used, the configuration of the display apparatus 200 is simplified and complicated connection is not required. Accordingly, user's convenience is improved. In other words, the embodiment can be applied to the configuration having only the first input part, that is, it can be applied even to the configuration in which still picture of baseband picture information is displayed. Moreover, in this example, one system of the HDMI interface is provided, although two or more systems thereof may be provided.

[0088]

Furthermore, another display aspect in the image display apparatus 200 of a plurality of still pictures photographed by the image apparatus 1 is now described with reference to Fig. 10. In such a display aspect, the plurality of still pictures are displayed on a reduced scale in one picture screen of the HD display 1002 simultaneously.

[0089]

In Fig. 10, the JPEG data file access circuit 1010 of the image display apparatus 200 transmits an image acquirement request of still picture to the image apparatus 1020 through the USB host interface circuit 1011 and the USB terminal 1012. The image apparatus

1020 outputs still picture data of compressed picture information stored in the memory 1018 through the USB mass storage interface circuit 1019 in response to the image acquirement request. The USB host interface circuit 1011 reads in the still picture data through the USB terminal 1012. Thereafter, the JPEG decoder circuit 1009 JPEG-decodes the read-in JPEG data to restore original picture data. The resize and effect addition circuit 1008 subjects the picture data to resize and effect processing to be temporarily stored as picture in a place corresponding to a display position 1 of Fig. 12. Similarly, the JPEG data file access circuit 1010 transmits an image acquirement request of next still picture to the image apparatus 1020 through the USB host interface circuit 1011 and the USB terminal 1012. The image apparatus 1020 outputs still picture data of next compressed picture information stored in the memory 1018 through the USB mass storage interface circuit 1019 in response to the image acquirement request. The USB host interface circuit 1011 reads in the still picture data through the USB terminal 1012. Thereafter, the JPEG decoder circuit 1009 JPEG-decodes the read-in JPEG data to restore original picture data. The resize and effect addition circuit 1008 subjects the picture data to resize and effect processing to be temporarily stored as picture in a place corresponding to a display position 2 of Fig. 12. The processing from

transmission of the image acquirement request to temporary storage of picture is performed repeatedly 12 times, for example, so that a plurality of still pictures named thumbnail display can be displayed together as shown in Fig. 12. This processing is performed by transmitting to the image apparatus 1020 the image acquirement requests 12 times during a predetermined period (for example, during one second or less).

[0090]

When there are 12 or more still pictures in the image apparatus 1020, thumbnail display is made every 12 pictures. In such a display method, since a plurality of pictures can be viewed simultaneously, it is convenient that difference in color and subtle difference in scenes can be understood easily.

[0091]

In the embodiment, in order to explain the operation simply, the single image apparatus 1020 is connected, although two image apparatuses 1020 can be connected and accordingly the two image apparatuses can be used to view 6 pictures, for example, in the respective image apparatuses in parallel simultaneously. By doing so, differences in color and brightness due to scattering of two image apparatuses 1020 and difference in photographing conditions can be confirmed and accordingly necessary picture can be selected from pictures displayed in two image

apparatuses easily.

[0092]

The display function can be realized even by using the configuration of Fig. 11. Operation has the same effect in Figs. 10 and 11 and a plurality of still pictures photographed by the image apparatus 1 can be displayed together. When the configuration of Fig. 11 is used, the configuration of the display apparatus 200 is simplified and complicated connection is not required. Accordingly, user's convenience is enhanced. In this case, a memory for combining a plurality of small pictures is required, although the plurality of small pictures may be previously combined in the memory 1018 of the image apparatus 1020 and then transmitted to the image display apparatus 200 or a memory (not shown) may be provided after the HDMI interface circuit and the decoder circuit 1004 and the small pictures may be stored in the memory. Either configuration is used to attain the same effects as Fig. 10.

[0093]

In the above description, the number of still pictures displayed simultaneously is 12, although the still pictures may be displayed in two rows in the vertical direction and in three columns in the horizontal direction as shown in Fig. 13. Furthermore, as shown in Fig. 14, the still pictures may be displayed in two rows in the vertical direction and in two columns in the horizontal direction. When the

division number as shown in Figs. 13 and 14 is used, the resolution of the HD display 1002 is 1080 × 1920. Accordingly, the resolution of a single small picture is about 300 × 500, so that difference in picture can be easily recognized. Moreover, when the small picture itself becomes smaller, flicker occurs in the picture screen, although the division of Figs. 13 and 14 can be used to reduce the flicker. On the other hand, when pictures from a digital camera are inputted in case where the division of Fig. 12 is used, the pictures can be arranged to be displayed together in the HD display 1002 having the aspect ratio of 16:9 effectively since the aspect ratio of the pictures is substantially 4:3. Even when the pictures are arranged to be displayed together as shown in Figs. 13 and 14, the substantially same effect can be attained, although there is an area where picture is not displayed slightly.

[0094]

Attribute information such as rotation information of picture and miss-elimination preventing lock information for prevention of miss-elimination is added to the pictures stored in the memory 1018 of the image apparatus 1020. In the embodiment, the attribute information is adapted to be sent from the image display apparatus 200 through the HDMI terminal 1005 to the image apparatus 1020 by operation of remote-control device or keyboard of the image display apparatus 200 to be stored in the memory 1018. Fig. 15 shows an

example of a management table of the attribute information stored in the memory 1018. As shown in Fig. 15, the attribute information concerning propriety of elimination lock and rotation angle can be added to each of the plurality of still pictures stored in the memory 1018 of the image apparatus 1020 in accordance with signal from the image display apparatus 200. In such configuration, since the apparatus directly controlled by the user is always the image display apparatus 200, the user can control miss-elimination preventing lock and rotation of picture by the same operation even if any image apparatus 1020 is connected, so that the user is not required to memorize complicated operation for each image apparatus 1020 and the convenience is improved.

[0095]

In the embodiment shown in Fig. 8, the encryption processing is not described in detail, although the encryption circuit 171 and the interface circuit 172 can be combined to perform processing as shown in Fig. 9. Fig. 9 illustrates an example of configuration for performing encryption processing in the system shown in Fig. 8. The system of Fig. 9 includes encryption/decryption circuits 821 to 826, interface circuits 830 and 831 containing encryption processing and error control circuits 841, 842, 843, 845, 846 and 847.

[0096]

Similarly to the example of Fig. 8, in an example shown in Fig. 9, predetermined bits are selected by bit selection circuit 811 and subjected to error control by respective error control circuits 841, 842. Thereafter, the error controlled bits are subjected to encryption processing by the encryption/decryption circuits 821, 822 to be inputted to the QPSK modulation/demodulation circuit 801 and the 64-QAM modulation/demodulation circuit 802. The signals demodulated by the QPSK modulation/demodulation circuit 804 and the 64-QAM modulation/demodulation circuit 805 are inputted to the encryption/decryption circuits 824 and 825, in which the encrypted signal is decrypted. Then, the decrypted signals are subjected to bit combination by the bit selection circuit 812. By performing such processing, signal processing can be performed in accordance with importance of information and important information is difficult to mistake, so that deterioration in picture quality is reduced and the signal can be transmitted effectively.

[0097]

Moreover, reversible sign can be combined with the encryption/decryption circuits 821 to 826, so that more efficient transmission can be attained. In the example shown in Fig. 9, for example, before the encryption processing is performed by the encryption/decryption circuits 821 to 823, bits to be transmitted are reduced by reversible arithmetic sign

using statistical property, for example, and then the encryption processing is performed. In the image display apparatus 200, after decryption processing is performed by the encryption/decryption circuits 824 to 826, the reversible sign corresponding to the encryption/decryption circuit 821 to 823 is decrypted. Thereafter, the error control circuits 845 to 847 perform error detection and correction and the bit selection circuit 812 performs bit combination. Since the combination with the reversible signal can reduce the transmission rate of information to be transmitted, transmission can be performed efficiently.

[0098]

Furthermore, supplementary description is made to encryption. When AES 128-bit encryption processing is used for all of the encryption circuits, protection processing having high security can be performed. When AES 128-bit encryption processing is used for the content encryption circuit 821 and DES encryption processing is used for other encryption circuits, the system in which protection of content important as the system is balanced with processing efficiency is configured easily.

[0099]

Furthermore, transmission of baseband signal and transmission of compressed signal may be switched in accordance with the inter-apparatus control signal. By configured in this manner, when the compressed

signal is transmitted in response to a request of protection of content, QPSK modulation is used to make transmission, so that transmission having excellent error tolerance in the transmission path can be attained. Further, when the baseband signal is transmitted, transmission having excellent transmission efficiency can be performed by 64-QAM modulation.

[0100]

Operation of the image apparatus 100 and the image display apparatus 200 in Fig. 9 is basically the same as that of the image apparatus 100 and the image display apparatus 200 in Fig. 8. In order to make the image apparatus 100 perform transmission, first, a carrier wave detection circuit (not shown) examines whether use channels are already occupied by other apparatuses or not. Detection of carrier wave is performed by detecting whether the carrier wave exists during a predetermined period in a predetermined frequency band or not. When the carrier wave detection circuit detects that other apparatuses use the channels, the carrier wave detection circuit examines an idle state of channel again after a while. Thereafter, when the detection circuit detects that the channel is not used by other apparatus, the detection circuit notifies the microprocessor 115 of the image apparatus 100 that the channel is empty. The microprocessor 115 outputs a channel use request signal as the inter-apparatus control signal through QPSK

modulation/demodulation circuit 803 to ensure the use right of channel. Then, the microprocessor 115 sends a transmission request signal to the bit selection circuit 811.

[0101]

An error control circuit 843 adds error control bit for error detection and correction to the transmission request signal and the encryption/decryption circuit 823 encrypts the signal to be transmitted to the QPSK modulation/demodulation circuit 803.

The QPSK modulation/demodulation circuit 803 subjects the signal to QPSK modulation and transmits radio signal to the image display apparatus 200 through the antenna 83. On the other hand, the image display apparatus 200 subjects the radio signal received by the antenna 86 to QPSK demodulation by means of QPSK modulation/demodulation circuit 806 and encryption/decryption circuit 826 decrypts the encrypted signal. The decrypted signal is subjected to error detection and correction control by means of the error control circuit 847, so that the inter-apparatus control signal is outputted to be transmitted to the bit selection circuit 812. The microprocessor of the image display apparatus 200 decodes the received inter-apparatus control signal and receives apparatus category information (for identifying a category indicating whether the apparatus is a display apparatus

or a recording apparatus) concerning the image apparatus 100 and an apparatus identification number of the image apparatus 100 together with the transmission request signal from the image apparatus 100. Inquiry as to whether connection to the image apparatus 100 is made or not is displayed in the display screen of the image display apparatus 200 and accordingly the user issues an instruction for permitting the connection in response to the displayed inquiry by means of an input device such as a remote-control device of the image display apparatus 200. Then, mutual apparatus category information and identification numbers for identifying mutual apparatuses are exchanged between the image apparatus 100 and the image display apparatus 200 and information for observing the protection of copyright for content and restriction conditions of copy is also exchanged, so that when there is no problem, mutual connection is permitted. When the mutual apparatuses are input-only apparatus or when connection has no meaning as in case of an output-only apparatus or when the protection of copyright for content or restriction conditions of copy are violated, connection is stopped and indication to that effect is displayed in the respective apparatuses. Thus, when there is no problem in the protection of copyright for content and restriction conditions of copy, connection is made and picture and audio signals are transmitted from the image apparatus 100 to the image display apparatus 200.

[EMBODIMENT 2]

[0102]

Fig. 5 is a block diagram schematically illustrating an image display apparatus 200 according to a second embodiment of the present invention. Fig. 5 has part common to the embodiment shown in Fig. 4 and the elements in the common part are designated by the same reference numerals. Detailed description thereof is omitted. The image display apparatus 200 shown in Fig. 5 includes an encryption/decryption circuit 212, encryption/decryption circuits 245, 290, compression/transcoding circuit 291, 292 and a copy control circuit 293 constituting a multiplexing circuit.

[0103]

In the embodiment shown in Fig. 5, when a baseband signal is inputted from terminal 201or 202, the image display apparatus 200 operates in the same manner as the embodiment shown in Fig. 4. The compression/transcoding circuits 292, 291 operate as compression circuit for the baseband signal. When a compressed signal is inputted from the terminal 201 or 202, the signal is supplied through input/output interface 210 to the encryption/decryption circuit 212, in which encryption necessary for transmission is decrypted and the decrypted signal is divided into compressed picture signal and compressed audio signal by demultiplexing circuit 250. Both of the signals are

supplied to copy control circuit 290, which judges whether copy is possible or not on the basis of information indicating whether copy is possible or not. When copy is possible, compression/transcoding circuits 291, 292 use compression system having more excellent compression efficiency to reduce bit rates of compressed picture and audio signals. Output signals of the compression/transcoding circuits 291, 292 are multiplexed by multiplexing circuit 293 to be inputted to encryption/decryption circuit 245. When the copy control circuit 290 detects that copy is permitted, the encryption/decryption circuit 245 subjects the input signal to encryption processing for storage and stores it in storage device 230 and/or memory 221. When the stored signal is reproduced, the reproduction signal from the storage device 230 or the memory 221 is decrypted by the encryption/decryption circuit 245 and is divided into picture and audio signals by the demultiplexing circuit 241. Thereafter, the picture and audio signals are subjected to the same processing as above to be viewed and listened.

Even when the signals are viewed and listened while being stored in the storage device 230 or memory 221, the signal from the multiplexing circuit 293 is inputted through the encryption/decryption circuit 245 to the demultiplexing circuit 241 to be subjected to the same processing. In this case, transcoded picture quality can be confirmed. When viewing and listening

are made directly without storing, the signal is inputted from the encryption/decryption circuit 212 through the encryption/decryption circuit 245 to the demultiplexing circuit 241, in which the signal is divided into picture and audio signals to be subjected to the same processing.

[0104]

In the embodiment shown in Fig. 5, even when the compressed signal is inputted, the signal can be subjected to transcoding to thereby be stored efficiently with higher compression ratio. Furthermore, in the embodiment, measures for processing the signal, including the compression circuits 111, 113 are realized by means of circuits by way of example. However, various circuit elements may be formed by software measures to realize the above processing and even in this case the same effects can be attained. The present invention does not limit how the signal processing is realized.

[Brief Description of the Drawings]

[0105]

[Fig.1] A diagram illustrating an embodiment of the present invention;

[Fig.2] A diagram illustrating an example of an image apparatus 100 according to an embodiment of the present invention;

[Fig.3A and 3B] Explanatory diagrams illustrating the order of processing of compressed signal;

[Fig. 4] A diagram illustrating an example of an image display apparatus 200 according to an embodiment of the present invention;

[Fig. 5] A diagram illustrating another example of an image display apparatus 200 according to an embodiment of the present invention;

[Fig. 6] A diagram illustrating an example of a system including two image apparatus connected to each other;

[Fig. 7] A diagram illustrating an example of a system including an image display apparatus and an image apparatus connected to each other;

[Fig. 8] A diagram illustrating an example of a system including two image apparatuses connected to each other by radio;

[Fig. 9] A diagram illustrating another example of a system including two image apparatuses connected to each other by radio;

[Fig. 10] A diagram illustrating an embodiment of an image display apparatus according to the present invention;

[Fig. 11] A diagram illustrating another embodiment of an image display apparatus according to the present invention;

[Fig. 12] A diagram illustrating an example of thumbnail display of the embodiment;

[Fig. 13] A diagram illustrating another example of thumbnail display of the embodiment;

[Fig. 14] A diagram illustrating another example of

thumbnail display of the embodiment;

[Fig. 15] A diagram illustrating an example of attribute information corresponding to still pictures stored in a memory 1018 of an image apparatus 1020;

[Fig. 16] A diagram illustrating an configuration example of HDMI interface;

[Fig. 17] A diagram illustrating an example of a format of a remote-control code;

[Fig. 18] A diagram illustrating an example of a method of transmitting the remote-control code by CEC line; and

[Fig. 19] A diagram illustrating an example table of maker codes and apparatus codes corresponding to interfaces stored in the image display apparatus 200.

[Explanation of reference numerals]

100 Image apparatus

121,221,321 Memory

122, 222 Radio interface

110 Photographing device

112 Microphone

114 Sensor

116、170、283、293 Multiplexing circuit

124、150、151、224、251、252 Signal processing circuit

130、230 Storage device

140、240、245 Encryption/decryption circuit

141、250、241 Demultiplexing circuit

142、143、242、243 Extension circuit

160 Display device

161、270 Audio output device

171 Encryption circuit

180 Broadcasting receiver

200 Image display apparatus

211、212 Encryption/decryption circuit

260 Display

280 Copy control circuit

300 Receiver

[Kind of Document] Claims

[Claim 1] A display apparatus comprising:

an input part being adapted to be connected to an external image apparatus through predetermined interface and be supplied with picture information from the external image apparatus;

a display part being adapted to display picture on the basis of the picture information supplied to the input part; and

a transmission part being adapted to transmit a picture acquisition request for getting the picture information from the external image apparatus through the interface to the external image apparatus at predetermined intervals;

being characterized by that:

the input part is supplied with a plurality of pieces of picture information from the external image apparatus in response to the picture acquisition request at predetermined intervals and

the display part displays picture on the basis of the plurality of pieces of picture information supplied to the input part at the predetermined intervals.

[Claim 2] A display apparatus according to Claim 1, being characterized by that:

the picture information supplied to the input part is compressed picture information.

[Claim 3] A display apparatus according to Claim 2, being characterized by that:

the predetermined interface is a radio or wired network and the compressed picture information is supplied through the network to the input part.

[Claim 4] A display apparatus according to Claim 2, being characterized by that:

the predetermined interface is a USB interface and the compressed picture information is supplied through the USB interface to the input part.

[Claim 5] A display apparatus according to Claim 1, being characterized by that:

the picture information supplied to the input part is baseband picture information.

[Claim 6] A display apparatus according to Claim 5, being characterized by that:

the predetermined interface is an HDMI interface and the compressed picture information is supplied through the HDMI interface to the input part.

[Claim 7] A display apparatus according to Claim 1, being characterized by that:

a plurality of pieces of picture information supplied to the input part are switched at the predetermined intervals to be displayed.

[Claim 8] A display apparatus according to Claim 1, being characterized by that:

a plurality of pieces of picture information supplied to the input part are arranged together in one picture screen of the display part to be displayed.

[Claim 9] A display apparatus comprising:

a first input part being adapted to be supplied with compressed picture information from an external image apparatus;

a second input part being adapted to be supplied with first baseband picture information from the external image apparatus;

an extension part being adapted to extend the compressed picture information supplied to the first input part and produce second baseband picture information;

a display part being adapted to display any one of the first baseband picture information supplied to the second input part and the second baseband picture information produced by the extension part; and

a transmission part being adapted to transmit a picture acquisition request for getting the picture information from the external image apparatus through the first or second input part to the external image apparatus at predetermined intervals;

wherein

the picture information is supplied to the first or second input part from the external image apparatus in response to the picture acquisition request at predetermined intervals and

the display part displays picture on the basis of a plurality of pieces of picture information supplied to the input part at the predetermined intervals.

[Claim 10] A display apparatus according to Claim 9, wherein

the compressed picture information is supplied to the first input part through a radio or wired network.

[Claim 11] A display apparatus according to Claim 9, wherein

the compressed picture information is supplied to the first input part through a USB interface.

[Claim 12] A display apparatus according to Claim 9, wherein

the first baseband signal is supplied to the second input part through an HDMI interface.

[Claim 13] A display apparatus according to Claim 9, wherein

the plurality of pieces of picture information supplied to the input part are switched at the predetermined intervals to be displayed.

[Claim 14] A display apparatus according to Claim 9, wherein

the plurality of pieces of picture information supplied to the input part are arranged together in one picture screen of the display part to be displayed.

[Claim 15] A display apparatus comprising:

an input part being adapted to be connected to an external image apparatus through predetermined

interface and to which a plurality of pieces of picture information can be supplied from the external image apparatus;

a transmission part being adapted to transmit a picture acquisition request for getting the picture information from the external image apparatus through the interface to the external image apparatus plural times within predetermined period;

a picture size changing part being adapted to change picture size of the plurality of pieces of picture information supplied to the input part in response to the picture acquisition request transmitted plural times to produce a plurality of small pictures;

a picture combination part being adapted to combine the plurality of small pictures having the picture size changed by the picture size changing part; and

a display part being adapted to display an output of the picture combination part.

[Claim 16] A display apparatus according to Claim 15, wherein

the transmission part transmits the picture acquisition request to the external image apparatus through the interface at predetermined intervals.

[Claim 17] A display apparatus according to Claim 15, wherein

the input part includes a first input part to which compressed picture information can be supplied

from the external image apparatus and a second input part to which first baseband picture information can be supplied from the external image apparatus and

the picture size changing part changes picture size of any one of the first baseband picture information supplied to the second input part and second baseband picture information obtained by extending the compressed picture information supplied to the first input part to produce the plurality of small pictures.

[Claim 18] A display apparatus according to Claim 17, wherein

the compressed picture information inputted to the first input part contains rotation information at time that the picture information is displayed and

rotation display performed on the basis of the rotation information is performed by controlling a connection part of the transmission part and the input part.

[Kind of Document] Abstract
[Abstract]

[Problem] The present invention provides a technique for improving the convenience in case where picture gotten by a portable image apparatus such as, for example, digital camera and mobile telephone is displayed in a display apparatus.

[Solution] A display apparatus transmits a picture acquisition request for getting picture information to an external image apparatus connected through a predetermined interface to the display apparatus from the external image apparatus at predetermined intervals and gets a plurality of pieces of picture information from the external image apparatus to be displayed. The plurality of pictures may be switched at predetermined intervals, for example, to be displayed, so that the plurality of pictures may be displayed in a so-called slide show manner. A plurality of pictures for thumbnail may be produced from the plurality of pieces of picture information and be arranged together to be displayed in one picture screen of a display part.

[Selected Drawing] FIG. 10

FIG.1

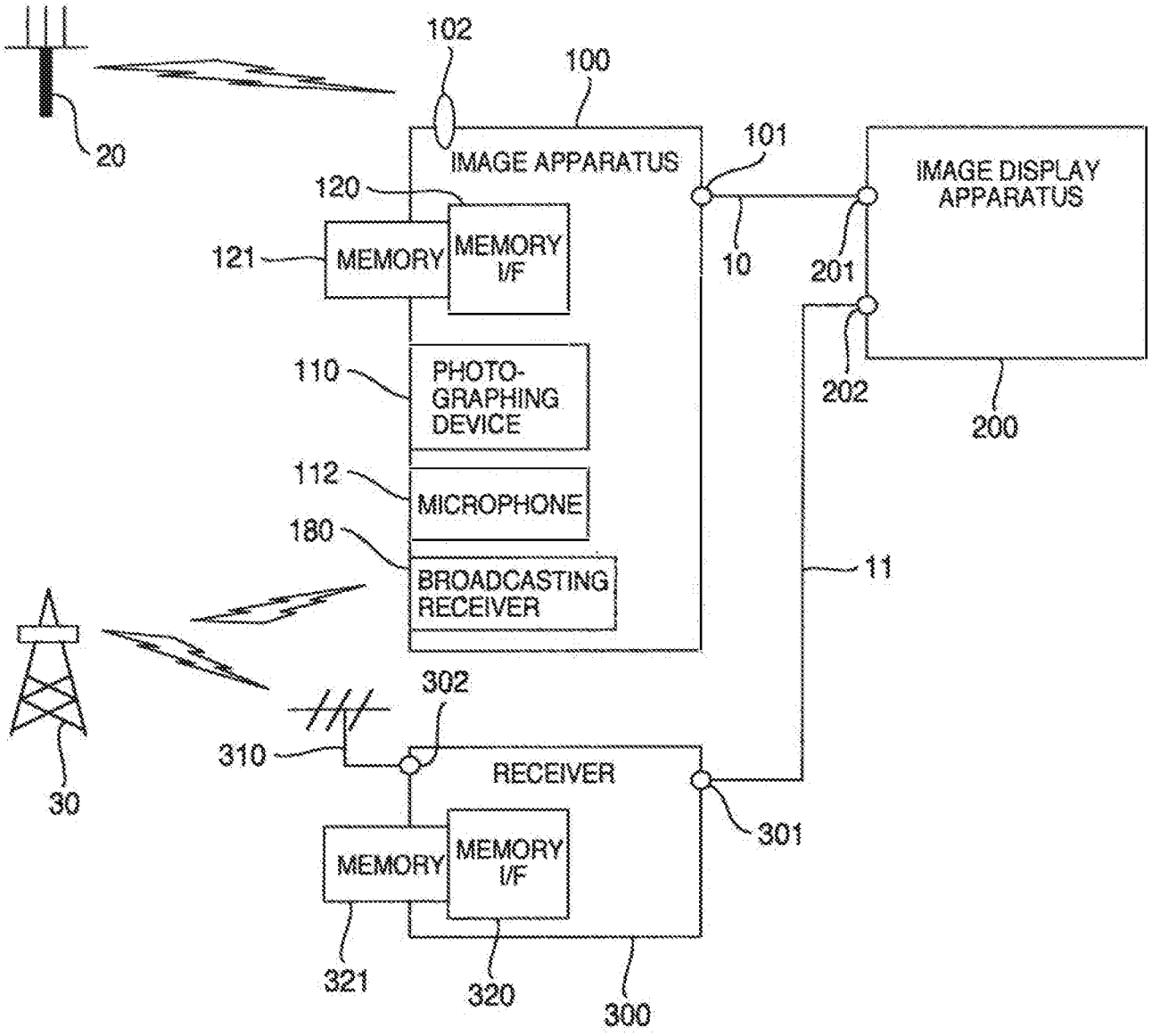
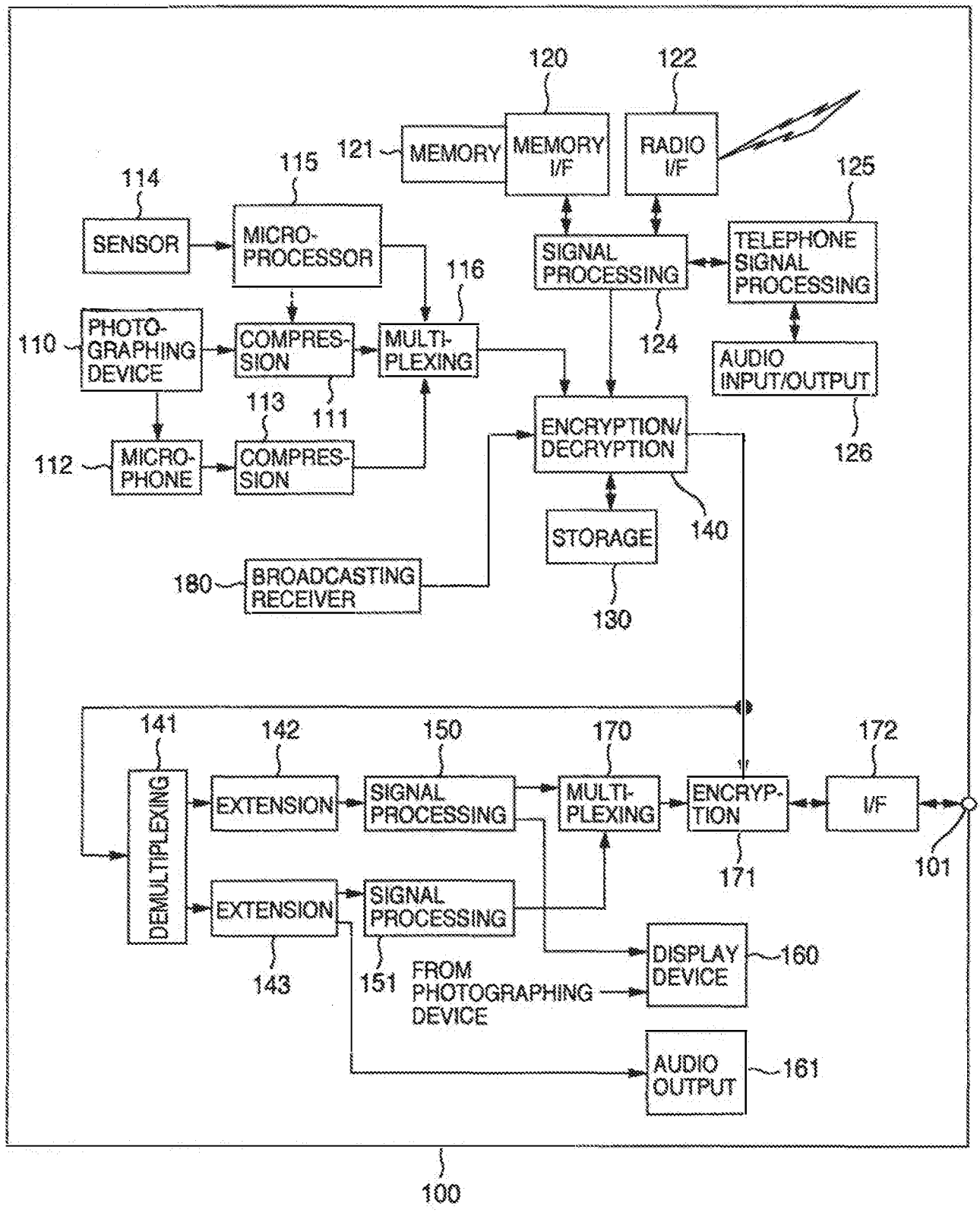

102
100
20
IMAGE APPARATUS
101
IMAGE DISPLAY APPARATUS
120
121
MEMORY
MEMORY I/F
10
201
110
PHOTO-GRAPHING DEVICE
202
200
112
MICROPHONE
180
BROADCASTING RECEIVER
11
302
310
RECEIVER
30
301
MEMORY
MEMORY I/F
321
320
300

FIG.2


120
122
121
MEMORY
MEMORY I/F
RADIO I/F
125
114
115
SENSOR
MICRO-PROCESSOR
SIGNAL PROCESSING
TELEPHONE SIGNAL PROCESSING
116
110
PHOTO-GRAPHING DEVICE
COMPRES-SION
MULTI-PLEXING
124
AUDIO INPUT/OUTPUT
113
111
ENCRYPTION/ DECRYPTION
126
112
MICRO-PHONE
COMPRES-SION
140
STORAGE
180
BROADCASTING RECEIVER
130
141
142
150
170
172
DEMULTIPLEXING
EXTENSION
SIGNAL PROCESSING
MULTI-PLEXING
ENCRYP-TION
I/F
171
101
EXTENSION
SIGNAL PROCESSING
DISPLAY DEVICE
160
143
151
FROM PHOTOGRAPHING DEVICE
AUDIO OUTPUT
161
100