

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): VILCOVSKY, Nissi Examiner: Not yet assigned
Serial No.: Not yet assigned Group Art Unit: Not yet assigned
Filed: Herewith
Title: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND
 DISPLAYING APPEARANCES

PRELIMINARY AMENDMENT

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Sir:

Prior to Examination, kindly amend the above-identified application as follows:

Amendments to the Specification begin on page 2 of this Amendment.

Remarks/Arguments begin on page 3 of this paper.

APPLICANT(S): VILCOVSKY, Nissi
SERIAL NO.: Not yet assigned
FILED: Herewith
Page 2

AMENDMENTS TO SPECIFICATION

In the Specification:

On page 1, line 5; please amend the Cross Reference as follows:

-- CROSS REFERENCE TO RELATED APPLICATIONS

[001]This application is a Continuation Application of United States Application No. 11/817,411, filed August 30, 2007, which is a National Phase Application of PCT International Application No. PCT/IL06/000281, International Filing Date March 1, 2006, which in turn claims priority from and the benefit of United States Provisional Application No. 60/656,884, filed March 1, 2005; and United States Provisional Application No. 60/656,885, filed March 1, 2005, the entire disclosures of both all of which are incorporated herein by reference.--

APPLICANT(S): VILCOVSKY, Nissi
SERIAL NO.: Not yet assigned
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REMARKS

Applicant requests entry of the Preliminary Amendment.

Applicant has amended the Cross Reference to properly reflect the claimed priorities of the current filed application.

No new mater has been added by this amendment.

Should the Examiner have any question or comment as to the form, content or entry of this Amendment, the Examiner is requested to contact the undersigned at the telephone number below.

No fees are due, however, if any fee is due, the undersigned hereby authorizes the United States Patent and Trademark Office to charge the fees to Deposit Account 50-5007.

Respectfully submitted,

/Naim Shichrur/

Naim Shichrur
Agent for Applicant(s)
Registration No. 56,248

Dated: April 17, 2011

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Attorneys/Agents for Applicants

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		Devices, Systems and Methods of Capturing and Displaying Appearances		
First Named Inventor/Applicant Name:		Nissi Vilcovsky		
Filer:		Naim Avraham Shichrur/Yael Rapoport		
Attorney Docket Number:		VIL-P-00092-US1C		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	82	82
Utility Search Fee	2111	1	270	270
Utility Examination Fee	2311	1	110	110
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				462

Electronic Acknowledgement Receipt	
EFS ID:	9895628
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	Devices, Systems and Methods of Capturing and Displaying Appearances
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	86530
Filer:	Naim Avraham Shichrur/Yael Rapoport
Filer Authorized By:	Naim Avraham Shichrur
Attorney Docket Number:	VIL-P-00092-US1C
Receipt Date:	17-APR-2011
Filing Date:	
Time Stamp:	11:47:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$462
RAM confirmation Number	6698
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Application Data Sheet	VIL-P-00092-US1C-ADS-17APR11.pdf	1031859 c59baa5809cfeaec09a8df8356e6aa3831318f2d	no	4
Warnings:					
Information:					
2	Oath or Declaration filed	VIL-P-00092-US1C-DEC-17APR11.pdf	443266 1a6f0cc95e0ebc01a9db86cf6d48822df5c7badc	no	2
Warnings:					
Information:					
3		VIL-P-00092-US1C-APP-17APR11.pdf	1279412 aea6b130ae72ee17cf3bb9b64c35987b69b3fd75	yes	25
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	18	
	Claims		19	20	
	Abstract		21	21	
	Drawings-only black and white line drawings		22	25	
Warnings:					
Information:					
4		VIL-P-00092-US1C-PRELIM-17APR11.pdf	70304 42a442b5fcc18f3d2f0f24069b0e5d025022cbee	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Preliminary Amendment		1	1	
	Specification		2	2	
	Applicant Arguments/Remarks Made in an Amendment		3	3	
Warnings:					
Information:					
5	Fee Worksheet (PTO-875)	fee-info.pdf	33029 3d077c191be323e54b9587fe57ab5db2a9a39ba9	no	2
Warnings:					
Information:					

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.

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	VIL-P-00092-US1C
		Application Number	
Title of Invention	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1					Remove
Applicant Authority		☒ Inventor		☐ Legal Representative under 35 U.S.C. 117	☐ Party of Interest under 35 U.S.C. 118
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Nissi		Vilcovsky		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Tokyo	Country Of Residenceⁱ	JP		
Citizenship under 37 CFR 1.41(b)ⁱ		IL			
Mailing Address of Applicant:					
Address 1	2-22-18-501 Ebisu				
Address 2	Shibuy				
City	Tokyo	State/Province			
Postal Code	150 0013	Countryⁱ	JP		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).			
☐ An Address is being provided for the correspondence information of this application.			
Customer Number	86530		
Email Address		Add Email	Remove Email

Application Information:

Title of the Invention	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES		
Attorney Docket Number	VIL-P-00092-US1C	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	VIL-P-00092-US1C
		Application Number	
Title of Invention	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES		

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.			
Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	86530		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.			
Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	Continuation of	11817411	2007-08-30
Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
11817411	a 371 of international	PCTIL0600281	2006-03-01
Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL0600281	non provisional of	60656885	2005-03-01
Prior Application Status	Expired	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
PCTIL0600281	non provisional of	60656884	2005-03-01
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

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.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	VIL-P-00092-US1C
		Application Number	
Title of Invention	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES		

			Remove
Application Number	Country ⁱ	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.				
Assignee 1				Remove
If the Assignee is an Organization check here. ☐				
Prefix	Given Name	Middle Name	Family Name	Suffix
Mailing Address Information:				
Address 1				
Address 2				
City		State/Province		
Country ⁱ		Postal Code		
Phone Number		Fax Number		
Email Address				
Additional Assignee Data may be generated within this form by selecting the Add button.				Add

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.					
Signature	/Naim Shichrur/			Date (YYYY-MM-DD)	2011-04-17
First Name	Naim	Last Name	Shichrur	Registration Number	56248

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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 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.

DECLARATION FOR PATENT APPLICATION AND POWER OF ATTORNEY
(Under 37 CFR § 1.63; includes reference to PCT International Applications)

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am an original, first and sole/ joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES, the specification of which (check one):

- ☒ is attached hereto
- ☐ was filed on _____ as United States patent application serial number _____
- ☐ was filed on _____ as an international patent application designating the United States that was assigned serial number _____

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including, for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below, and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application(s) on which priority is claimed.

Prior Foreign/PCT Application(s):			Priority Claimed:	
Country (or PCT)	Application Number:	Filed (Day/Month/Year)	Yes	No
PCT	PCT/IL06/00281	01 MARCH 2006	X	

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application listed below, and, insofar as the subject matter of each of the claims of this application is not disclosed in any prior United States application in the manner provided by the first paragraph of

Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a), which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Prior U.S. (or PCT-designating U.S.) Application(s):		
U.S. Serial No.:	Filed (Day/Month/Year)	PCT Application No.
11/817,411	30 AUGUST 2007	N/A
N/A	01 MARCH 2006	PCT/IL06/00281
60/656,885	01 MARCH 2005	N/A
60/656,884	01 MARCH 2005	N/A

I hereby appoint all attorneys/agents associated with customer number 86530 or their duly appointed associate or agent, my attorney(s) and agent(s), with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to file continuation and divisional applications thereof, to receive the Patent, and to transact all business in the Patent and Trademark Office and in the Courts in connection therewith, and specify that all communications about the application are to be directed to the correspondence address associated with customer number 86530:

Please associate this application with customer number 86530.

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.

INVENTOR(S):

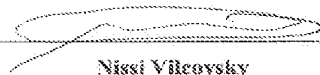
Full name of first inventor: Nissi Vilcovsky

Residence: 2-22-18-501 Ebisu, Shibuy, Tokyo 150 0013, Japan

Citizenship: Israel

Full Post Office Address: same as above

Signature:


Nissi Vilcovsky

Date:

04 16 2011
MM/DD/YYYY

DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

5 CROSS REFERENCE TO RELATED APPLICATIONS

[001] This application claims priority from United States Provisional Application No. 60/656,884, filed March 1, 2005; and United States Provisional Application No. 60/656,885, filed March 1, 2005, the entire disclosures of both of which are incorporated herein by reference.

10

FIELD OF THE INVENTION

[002] The invention relates generally to imaging and display systems and, more particularly, to interactive displays, e.g., in retail and/or service environments.

15 BACKGROUND OF THE INVENTION

[003] Customers may shop for consumer articles, for example, apparel such as clothes, e.g., shirts, pants, coats and other garments, as well as shoes, glasses, and/or any other items or products, such as cosmetics, furniture and the like. Shopping normally takes place at a shopping facility, for example, retail stores. Prior to making a decision which article to buy a customer may try on various articles (e.g., apparel, cosmetics) and/or pose with other articles (e.g., furniture), and may view for each trial a user-appearance in front of a mirror, which may be located, for example, at a trial area of the retail store. For example, the customer may try on a first article, e.g., a suit, and view for that first trial his/her user-appearance in front of the mirror. Then, the customer may try on a second article, e.g., another suit. The customer may then need to memorize his/her user-appearance from the first trial in order to perform a mental comparison between the first article and the second article, thereby to evaluate which of the two articles might be a better fit for the customer.

[004] Unfortunately, since the customer may try on numerous articles and/or since the second trial may take place a considerable amount of time after the first trial, the customer may not be able to recall his/her appearance for each trial and may therefore be

required to repeatedly retry articles, e.g., items of apparels, previously tried on. This may result in a frustrating and inefficient shopping experience.

SUMMARY OF SOME EMBODIMENTS OF THE INVENTION

5

[005] Some demonstrative embodiments of the invention include devices, systems and/or methods enabling appearance comparison.

[006] According to some demonstrative embodiments of the invention, a system enabling appearance comparison may include at least one interactive imaging and display
10 station. The station may include, for example, a mirror display device capable of operating in either or both a mirror or a display mode; an imaging device to capture one or more appearances from a field of view in front of the mirror-display device; and/or an image control unit to select the mode of operation the mirror display device according to a user command.

15 [007] According to some demonstrative embodiments of the invention the image control unit may include an input device to receive the user command.

[008] According to some demonstrative embodiments of the invention, the image control unit may include a storage device to store data of one or more images which may correspond to one or more appearances.

20 [009] According to some demonstrative embodiments of the invention, the mirror-display device may be capable of being partitioned into at least first and second simultaneously-displayable frames. The first frame may be selectably operable, for example, both in a mirror mode and a display mode. The second frame may be operable, for example, in a mirror mode.

25 [0010] According to some demonstrative embodiments of the invention, the imaging device may be capable of capturing three-dimensional images of appearances.

[0011] According to some demonstrative embodiments of the invention, the mirror-display device may be capable of displaying images of appearances at predefined sequences.

[0012] According to some demonstrative embodiments of the invention, the image control unit may be able to selectively enable a user access to images of appearances authorized to the user, e.g., based on user-identifying data received from the user.

5 [0013] According to some demonstrative embodiments of the invention, the at least one interactive imaging and display system may include two or more interactive imaging and display stations able to communicate over a network. For example, the two or more stations may be able to communicate between each other data representing images of appearances.

10 [0014] According to some demonstrative embodiments of the invention, the image control unit may control the mirror-display device to display, e.g., during the display mode, one or more images corresponding to the appearances. The one or more images may include, for example, one or more mirrored appearances.

15 [0015] According to some demonstrative embodiments of the invention, a method enabling appearance comparison may comprise using a mirror mode of operation of a mirror-display device capable of being selectably operated in either a mirror or a display mode; capturing an image corresponding to an appearance of a first trial in front of the mirror-display device; storing the image of the first trial; selecting the display mode of operation of the mirror-display device; and/or retrieving the image of the first trial and displaying the image on the mirror-display device.

20

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The subject matter regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, both as to organization and method of operation, together with features and advantages thereof, may best be understood by reference to the following detailed description when read with the accompanied drawings in which:

[0017] Fig. 1 is a schematic illustration of an interactive system enabling appearance comparison in accordance with some demonstrative embodiments of the invention;

[0018] Figs. 2A and 2B are schematic illustrations of two, sequential, stages of appearances comparison using an interactive system in accordance with some demonstrative embodiments of the invention; and

[0019] Figs. 3A, 3B and 3C are schematic illustrations of three, sequential, stages of appearances comparison using an interactive system in accordance with some demonstrative embodiments of the invention; and

[0020] Fig. 4 is a schematic flow chart of a method enabling comparison of one or more user-appearances in accordance with some demonstrative embodiments of the invention.

[0021] It will be appreciated that for simplicity and clarity of illustration, elements shown in the figures have not necessarily been drawn accurately or to scale. For example, the dimensions of some of the elements may be exaggerated relative to other elements for clarity or several physical components included in one element. Further, where considered appropriate, reference numerals may be repeated among the figures to indicate corresponding or analogous elements. It will be appreciated that these figures present examples of embodiments of the present invention and are not intended to limit the scope of the invention.

DETAILED DESCRIPTION OF SOME DEMONSTRATIVE EMBODIMENTS OF THE INVENTION

5 [0022] In the following description, various aspects of the present invention will be described. For purposes of explanation, specific configurations and details are set forth in order to provide a thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without the specific details presented herein. Furthermore, some features of the invention relying on
10 principles and implementations known in the art may be omitted or simplified to avoid obscuring the present invention.

[0023] Some demonstrative embodiments of the invention may include an interactive system enabling a user to compare one or more appearances, for example, to compare between different appearances, e.g., as described in detail below.

15 [0024] The term "user-appearance" as used herein may relate to the appearance of a customer while trying a consumer article. The article may include, for example, apparel, such as clothing, shoes, glasses, garments, ties, and the like; an article, e.g., furniture, located in the vicinity of the customer; as well as other items, articles, designs or products such as, for example, cosmetics, headdresses, hair cuts.

20 [0025] According to some demonstrative embodiments of the invention, the system may include an imaging device able to capture user-appearances and a mirror-display device, able to operate selectably as a mirror or as a display. When in the mirror mode, the mirror-display device may enable the user to evaluate and/or view a user-appearance of a current trial of a consumer article. When in the display mode, the mirror-display
25 device may enable the user to evaluate and/or view one or more user-appearances, e.g., as captured by the imaging device, of a previous trial, e.g., as described in detail below.

[0026] Reference is made to Fig. 1, which schematically illustrates an interactive system 100 in accordance with some demonstrative embodiments of the invention.

30 [0027] According to some demonstrative embodiments of the invention, system 100 may include an interactive imaging and display station 110, which may include an image control unit 120, an imaging device 130, and a mirror-display device 140. Image control

unit 120 may include a controller 121, a network interface 122, a storage device 123, an input device 124, all of which elements are described in detail below.

[0028] Aspects of the invention are described herein in the context of demonstrative embodiments of an imaging device, e.g., imaging device 130, a mirror-display device, e.g., mirror-display device 140, and/or an image control unit, e.g., image control unit 120, being separate units of an appearance comparison system, e.g., system 100. However, it will be appreciated by those skilled in the art that the invention is not limited in this respect, and that according to other embodiments of the invention, the system may include any suitable configuration, combination, and/or arrangement of the imaging device, the mirror-display device, and/or the image control unit. For example, the system may include an integrated module including the mirror-display device, the imaging device and/or the image control unit. For example, the imaging device and/or the image control unit may be implemented as part of the mirror-display device.

[0029] According to some demonstrative embodiments of the invention, mirror-display device 140 may be configured and/or may include components and mechanisms allowing mirror-display device 140 to operate selectably in two modes of operation. In a first mode of operation (the "mirror-mode"), mirror-display device 140 may operate as a mirror. In a second mode of operation (the "display mode"), mirror-display device 140 may operate as a display. When mirror-display device 140 operates in the mirror-mode, a user 111 of system 100 may evaluate and/or view a user-appearance of a first trial of a consumer article, as may be reflected by mirror-display device 140. Imaging device 130 may capture an image of the user-appearance of the first trial. The captured image may be stored, for example, by storage device 123, e.g., as described below. User 111 may then pose in front of mirror-display device 140 trying a second article, and imaging device 130 may capture a second image of the user-appearance of the second trial. When in the display mode, mirror-display 140 may be controlled to display one or more of previously captured images. By virtue of the capability of mirror-display device 140 to operate selectably in the mirror or display mode, user 111 may be able to compare simultaneously or sequentially between the user-appearances of the first and second trials, as described in detail below. In some demonstrative embodiments of the invention, e.g., as shown in Figs. 1, 2A, 2B, 3a, and/or 3B, controller 121 may control device 140 to

display, during the display mode of operation, a mirror-image of the appearances. However, it will be appreciated by those of ordinary skill in the art that the invention is not limited in this respect, and that in other embodiments the controller may control device 140 to display, during the display mode of operation, any other image
5 corresponding to the appearance, e.g., a rotated appearance, a revered appearance, a substantially non-altered, e.g., frontal, appearance, a rendered appearance, and the like, e.g., as described below.

[0030] Device 140 may include any suitable configuration and/or mechanism to enable selectably operating mirror-display device 140 in the first and second modes of operation.

10 For example, in one embodiment device 140 may include an array of liquid crystal (LC) elements, which may change their optical attributes such as, e.g., reflectivity, refractive index and the like, depending on, for example, a voltage applied to the liquid crystals. For example, applying a first voltage may result in changing the optical attributes of the liquid crystals such that mirror-display device 140 may operate as a mirror; and a second
15 voltage may result in changing the optical attributes of the liquid crystals such that mirror-display device 140 may operate as a liquid crystal display.

[0031] In another embodiment of the invention, for example, mirror-display device 140 may include a liquid crystal display (LCD) device embedded in a semi-reflective or one-directional mirror. Accordingly, if the LCD is switched to an inactive mode of operation,
20 mirror-display 140 may passively reflect sufficient light incident thereon to enable the user to view user-appearances at reasonable quality and brightness. In contrast, when the LCD is turned to an active mode of operation, mirror-display device 140, images displayed by the LCD device may be viewed by user 111 because they may be significantly brighter than residual reflections from the surface of the mirror-display.

25 [0032] According to some demonstrative embodiments of the invention, mirror display device 140 may be implemented by a LCD HD ready mirror TV such as, for example, model No. 32PM8822/10 available from Royal Philips Electronics, e.g., as described at the Internet site <http://www.research.philips.com/newscenter/archive/2003/mirrortv.html>. Such a device may include, for example, a polymer-based organic light-emitting display (OLED).
30 Mirror-display device 140 may include any other suitable device implementing any suitable display technology. For example, device 140 may include a nano-emissive

display (NED); a plasma display panel (PDP); a cathode ray tube display (CRT); a Digital Light Processing (DLP) display; a surface conduction electron emitter display (SED); a Tablet screen; a flat-panel SED; an Organic electronic display; electronic paper; a 3-Dimensional display, e.g., a Hologram display; a thin film resistor (TFT) display; an optical TFT; a Dot Matrix LED screen; an LCD having CCD capabilities, e.g., such that mirror-display 140 may be capable of performing the functionality of imaging device 130; a paintable LCD; a surface-conduction electron-emitter (SED) display; a high definition television (HDTV) display; a rear projector display device, and the like.

[0033] According to some demonstrative embodiments of the invention, imaging device 130 may be adapted to capture one or more appearances from a Field-of-View (FOV) in front of mirror-display device 140. The FOV in front of mirror-display device 140 may include, for example, a field, area, scene, zone, and/or region in front of mirror-display device 140. For example, the FOV may include at least part of a field, area, scene, zone, and/or region captured by mirror-display device 140 when in the mirror mode.

[0034] Although the scope of the present invention is not limited in this respect, imaging device 130 may be or may include, for example, a CCD camera, a video camera, a camera and/or camera set-up enabling capturing of 3D-images, e.g., a stereoscopic camera and the like. A stereoscopic camera may be adapted, for example, to capture a 3-D image of the user-appearance. The stereoscopic camera may include, for example, two lenses having a distance between each other that may correspond to a distance between two human eyes. Accordingly, the stereo camera may be able to simulate human binocular vision, also known as Stereophotography, thereby being able to capture a 3D-image.

[0035] According to some demonstrative embodiments of the invention, station 110 may be a stand alone unit, which may be located at an appearance- comparison area of a desired location, for example, an office, a home, or a retail store, e.g., apparel store.

[0036] According to other demonstrative embodiments of the invention, station 110 may be connected, e.g., via network interface 122, to a network, for example, a network 150, thereby enabling communication between station 110 and one or more other stations affiliated with network 150 such as, for example, station 160 and/or station 170.

- [0037] According to some demonstrative embodiments of the invention, station 110 may include a network interface 122, which may be adapted to interact with network 150, to send and receive information from other stations in network 150, as described herein. Such information may include but is not limited to data corresponding to images of users captured at various stations of system 100, for example, station 160 and/or 170, as well as identifying information of the users to enable secure access to the system, as described in more detail below. Network 150 may include, for example, a local area network (LAN), a wide area network (WAN), a global communication network, e.g., the Internet, a wireless communication network such as, for example, a wireless LAN (WLAN) communication network, a Bluetooth network, a wireless virtual private network (VPN), a cellular communication network, for example, a 3rd Generation Partnership Project (3GPP), such as, for example, Frequency Domain Duplexing (FDD) network, a Global System for Mobile communications (GSM) network, a Wideband Code Division Multiple Access (WCDMA) cellular communication network, and the like.
- [0038] According to some demonstrative embodiments of the invention, one or more of stations 160 and 170 may be portable devices. Non-limiting examples of such portable devices may include a mobile telephone, a laptop computer, a notebook computer, a mobile computer, a Personal Communication Systems (PCS) device, Personal Digital Assistants (PDA), a wireless communication device, a PDA device which incorporates a wireless communication device, a cellular telephone, a wireless telephone, a smart card, a token, a memory card, a memory unit, and the like. In some embodiments of the invention, one or more of stations 160 and 170 may be non-portable devices such as, for example, a desktop computer, a tablet computer, a television set, a server computer, and the like.
- [0039] According to some embodiments of the invention, system 100 may also include a control center 190, which may be connected to stations 110, 160 and/or 170, e.g., via network 150. Control center 190 may receive and store data, which may represent, for example, data and/or images of user-appearances, received from one or more of stations 110, 160 and/or 170.
- [0040] According to some embodiments of the invention, stations 110, 160 and/or 170 may be located at different locations such as, for example, different stores of a retail

chain. In addition, stations 110, 160 and/or 170 may be located at different locations within a building, e.g., different floors, different sections at the same floor and the like. Such locations may include, for example, clothing stores, shoe stores, points of sale, concept showrooms, exhibitions, shopping malls, eyewear stores, cosmetic stores, sport clubs, health institutes, fitness centers, airports, train stations, coffee shops, restaurants, hotels, homes, and the like. One or more of stations 110, 160 and 170 may also be used for interactive billboard signs. For example, imaging device 130 may, for example, capture images which may be displayed on a billboard sign (not shown). System 100 may enable user 111 to choose an image to be displayed on the billboard sign out of a plurality of images of, for example, various previous trials of apparel.

[0041] According to some demonstrative embodiments of the invention, images of user appearances may be viewed at different locations. For example, imaging device 130 may capture an image of the first trial. The image may then be sent from network interface 122 via network 150 using signals 151 and 152, for example, to station 160. Accordingly, user 111 may be able to view the image of the first user-appearance at station 160. Therefore, user 111 may be able to view, for example, the user-appearance of the first trial in a first store of a retail store chain, e.g., a store associated with station 110; and may compare the user-appearance of the first trial with a user-appearance of a second trial, which may take place at a second store of the same or an affiliated chain, e.g., a store associated with station 160; and/or at a different time, e.g., one or more hours, days or weeks after the first trial.

[0042] According to another demonstrative embodiment of the invention, imaging device 130 may capture an image of a user-appearance of a first trial, and send the image via network interface 122 over network 150 to control center 190, where the image may be stored for later retrieval. Accordingly, user 111 may gain access to the images of the first trial by accessing any station, e.g., station 160, connected over network 150 with control center 190.

[0043] According to some demonstrative embodiments of the invention, storage device 123 may include, for example, a hard disk drive, a floppy disk drive, a Compact Disk (CD) drive, a CD-ROM drive, a Digital Versatile Disc (DVD) drive, or other suitable removable or non-removable storage units.

[0044] According to some demonstrative embodiments of the invention, controller 121 may be or may include, for example, a Central Processing Unit (CPU), a Digital Signal Processor (DSP), a microprocessor, a controller, a chip, a microchip, an Integrated Circuit (IC), or any other suitable multi-purpose or specific processor or controller, e.g.,
5 as are known in the art.

[0045] Input device 124 may include, for example, a keyboard; a remote control; a motion sensor; a pointer device such as, for example, a laser pointer; a mouse; a touch-pad; a touch screen, which may be embedded, for example, in mirror-display device 140, or may be implemented by any other suitable unit, e.g., separate from device 140; a
10 biometric input device, e.g., a fingerprint scanner, and/or a camera for scanning a face; and/or any other suitable pointing device or input device. Input device 124 may be adapted to receive user-identifying data, for example, to enable, access, e.g., secure access, of user 111 to system 100, as described in detail below.

[0046] According to some demonstrative embodiments of the invention, user 111 may
15 provide user commands to input device 124 for operating the imaging device 130. Input device 124 may include, for example, an interface to enable user 111 of system 100 to define operational parameters of imaging device 130. Controller 121 may receive the inputs from user 111 via signals 131 and control the operation of imaging device 130 accordingly. The user commands may include, for example, commands relating to the
20 timing for capturing an image, the positioning of imaging device 130, e.g., according to an automatic tracking algorithm which may follow, for example, the position of user 111, and/or imaging attributes such as focus, camera position, capturing angle, dynamic range and the like. The user commands may also include commands to define image capturing operating modes of imaging device 130 such as, for example, a video capturing mode, a
25 photographic mode and the like. According to some embodiments of the invention, imaging device 130 may include a sound input device, for example, a microphone and/or a sound output device, for example, a loudspeaker. Accordingly, imaging device may receive audio signals, e.g., voice signals generated by user 111, which may be recorded and stored, e.g., in storage device 123 and reproduce the audio signals through the sound
30 output device. The sound output device may be able to reproduce any other kind of audio signals such as, radio programs, compact disc records and the like.

[0047] According to some demonstrative embodiments of the invention, controller 121 may, for example, set the mode of operation of mirror-display device 140 according to the command received from user 111. For example, if mirror-display device 140 operates in the mirror mode, the user of system 100 may provide input device with a switching
5 command, e.g., by pressing a designated button at input device 124, for switching mirror-display device 140 to the display mode. Controller 121 may receive the input from input device 124 and may control device 140 to switch to the display mode of operation, e.g., using signals 141.

[0048] According to some demonstrative embodiments of the invention, imaging
10 device 130 may be mounted in various positions such as, for example, on top, below, or on the side of mirror-display device 140, thereby capturing an image of a user-appearance which may be an image of a given trial of apparel, an image of user 111 with various articles, e.g., furniture and/or posing with different garments and the like. In some embodiments of the invention, imaging device 130 may capture a user-appearance as it
15 appears in mirror-display device 140, i.e., a mirror-image of the user-appearance. In other embodiments, imaging device 130 may capture the appearance, and controller 121 may generate a mirror-image corresponding to the appearance captured by imaging device 130. For example, storage 123 may store instructions that when executed by controller may result in any suitable method or algorithm of rotating, reversing, and/or mirroring the
20 appearance captured by imaging device 130, thereby to generate image data representing rotated, reversed, and/or mirrored image of the image captured by device 130. According to these embodiments, controller 121 may control mirror-display device 140 to display, during the display mode of operation, the rotated, reversed, and/or mirrored image. In other embodiments, controller 121 may control mirror-display device 140 to display,
25 during the display mode of operation, an image corresponding to the image captured by device 130, e.g., a non-mirrored, non-rotated, and/or non-reversed image. In some embodiments, imaging device 130 may not be visible to user 111, may be located behind display device 140, and/or may be embedded in mirror-display device 140, which may be or may include, for example, a LCD-CCD device capable of both displaying and
30 capturing images. For example, in one demonstrative embodiment of the invention, device 140 may include an array, screen or surface, e.g., including liquid crystals, to

perform the mirror-display functionality, e.g., as described above, as well as the imaging functionality of imaging device 130, e.g., device 140 may include a mirror-imaging-display device.

[0049] In some demonstrative embodiments of the invention, one or more of stations 110, 160 and/or 170 may not include image capturing device 130; and/or one or more of stations 110, 160 and/or 170 may not include mirror-display 140. For example, a first station of system 100 may include only imaging device 130, and may not include, e.g., mirror-display device 140. User 111 may use the first station to capture the image of the first trial of the user-appearance, e.g., without being able to view at the first station the resultant image of the first trial. User 111 may later view the captured image of the first trial at another station of system 100, which may include mirror-display device 140.

[0050] According to some demonstrative embodiments of the invention, imaging device 130 may be positioned in a manner enabling capturing of an image and/or a sequence of images, videos or the like, of a scene taking place in front of mirror-display device 140. Additionally or alternatively, imaging device 130 may positioned in a manner enabling capturing an image reflected from mirror-display device 140. For example, imaging device 130 may be able to capture an image of user 111 posing in front of mirror-display device 140. While posing in front of mirror-display device 140, user 111 may check his appearance of, e.g., a first fitting trial of clothes. According to an input provided by user 111 at input device 124, imaging device 130 may capture the image of the user-appearance which may be, for example, a given trial of apparel, e.g., a garment and the like. It may be noted that trials by user 111 may also include user 111 engaging with various subjects, which may be located in the vicinity of user 111 such as, furniture, studio set-up and the like. Accordingly, imaging device 130 may capture images of user-appearances of, for example, a first trial, a second trial, etc., and may send the respective captured images to storage device 123 via signals 131 and signals 30. User 111 may be able to retrieve the captured image of, e.g., the first trial, at a later time, e.g., following the second or other subsequent trials, and may compare between the first and second or other trial, e.g., as described below with reference to Figs. 2A, 2B and 2C.

[0051] According to some demonstrative embodiments of the invention, storage device 123 may be adapted to receive data representing images captured by imaging device 130,

and to store images of appearances and, more specifically, user-appearances of, for example, given trials of apparel, captured by imaging device 130. Images of given trials of user-appearances may be retrieved from storage device 123, e.g., by controller 121, and displayed by display 140. User 111 may compare between the displayed images, e.g., as described in detail below.

[0052] According to some demonstrative embodiments of the invention, storage device 123 may include data representing, e.g., software algorithms, requiring and/or verifying user identifying data such as user-ID, password, login-time, bio-metric data and the like to enable secure access to station 110, as described in detail below. For example, controller 121 may control mirror-display device 140 to display images corresponding to an identity of user 111, e.g., based on the identity data provided by user 111. For example, user 111 may provide input 124 with user-identifying input, which may include, for example, a biometric input such as face recognition, a hand print, a finger print, an eye print, voice recognition and the like. The user-identifying input may include any other suitable input, for example, a credit card, a personal identification number (PIN), a password, a smart card, a customer card, a club card, or the like. Controller 121 check, e.g., based on any suitable method and/or algorithm, whether the user-identifying input provided at input device 124 matches with user-identifying data which may be stored, e.g., in storage device 123 or in control center 190. Software having the capability of verifying a biometric input may be, for example, "Active ID FaceVision technology" ® provided by Geometric Inc. If controller 121 matches the input of user 111 with the stored user-identifying data, controller 121 may enable user 111 to access data representing, for example, images of previous user-appearances of user 111.

[0053] According to some demonstrative embodiments of the invention, storage device 123 may include data representing, e.g., software algorithms enabling additional system features such as, for example, rendering virtual effects on mirror-display device 140. For example, controller 121 may be able to render an image at mirror-display device 140 of user-appearances engaged and/or combined with virtual articles such as, for example, clothes, collections, headdresses, hair cuts, furniture and the like. In addition, controller 121 may be able to render an image at mirror-display device 140 of user-appearances having different body shapes for simulating, e.g., weight loss, weight gain of user 111

and the like. For example, user 111 may choose in a first trial a specific article, such as a suit out of a collection and controller 121 may virtually adjust the collection to an image of user 111 appearing in mirror-display device 140. Controller 121 may store the image of the first trial in storage device 123 and may perform the same step at a second trial.

5 Accordingly, user 111 of system 100 may be able to compare between user-appearances of the first and a second trials of the collection.

[0054] According to some demonstrative embodiments of the invention, controller 121 may provide, for example, image and/or video browsing capabilities, image and/or video replay functions, which capabilities and functions may be predefined by system 100 or
10 may be defined, e.g., on-the-fly, according to one or more user commands received from user 111 via input device 124. For example, controller 121 may be able to retrieve one or more images of previous user-appearances and display the images on mirror-display device 140 at various sequences. For example, images from previous trials may be displayed in a substantially continuous forward, backwards, or mixed, e.g., randomly-
15 accessible, sequence, and/or may be a stepwise sequence or in any other sequence. Furthermore, images from previous trials may be displayed simultaneously at mirror-display device 140, e.g., as described below. Controller 121 may also be able to delete previously captured user-appearances, limit the amount of data which may be saved in storage device 123 and the like, and may further control a shape, size, color, etc., of the
20 image displayed on mirror-display device 140.

[0055] According to some demonstrative embodiments of the invention, user 111 may use a portable storage device 180 able to store one or more of the captured images. The portable storage device may include any suitable portable storage device, e.g., a smartcard, a disk-on-key device, and the like. User 111 may download, for example,
25 images represented by, e.g., signals 50, of a first trial of user-appearances from storage device 123, e.g., via a storage interface 125 or via any other suitable data connection. User 111 may then upload at a later time the image of, e.g., the first trial, to another location, e.g., a home of user 111, or another station of system 100, e.g., station 170.

[0056] In some embodiments of the invention, station 110 may include more than one
30 mirror-display device or may include a mirror-display device 140, which may be

partitioned simultaneously into two frames as described hereinafter with reference to Figs. 2A and 2B.

[0057] According to some demonstrative embodiments of the invention, controller 121 may record or store, e.g., in storage 123, parameters characterizing user 111. For example, system 100 may include a weighing machine, connected to, e.g., storage device 123 via controller 121. Controller 121 may be able to record, for example, a weight of user 111 during, for example, a trial of an article. Accordingly, user 111 may later retrieve the parameter which may be, for example, the weight of user 111.

[0058] Reference is now made to Figs 2A and 2B, which schematically illustrate stages of comparing between appearances using an interactive system in accordance some demonstrative embodiments of the invention.

[0059] According to some demonstrative embodiments of the invention, mirror-display device 140 may be partitioned into two frames, wherein one frame may operate as a mirror frame 191 and another frame 192 may operate selectably as a mirror and as a display frame. As shown in Fig. 2A, user 111 may pose in front of mirror frame 191 a first trial, which may be captured by imaging device 130 and stored in storage device 123. Henceforward, as indicated in Fig. 2B, user 111 may view simultaneously in mirror frame 192 the image of the user-appearance of the first trial and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (Fig. 1), side-by-side with the normal mirror appearance of a second trial, and compare between the first and the second trial.

[0060] Reference is now made to Figs. 3A, 3B and 3C, which schematically illustrate three, sequential, stages of comparing between appearances using an interactive system in accordance some demonstrative embodiments of the invention.

[0061] As shown in Fig. 3A, the user of system 100 may view a first trial of a user-appearance in mirror-display device 140 operating in its mirror mode. Controller 121 may receive, e.g., from input device 124, a user input, which may include a request to use imaging device 130 for capturing a first trial of the user-appearance. As a result, imaging device 130 may capture an image of the first trial of the user-appearance and storage device 123 may store the captured image.

[0062] As shown in Fig. 3B, user 111 may view a second trial of his user-appearance in mirror-display device 140, which may operate in the mirror mode of operation. Then, when user 111 desires to view a previous appearance, e.g., for comparison, controller 121 may receive a user input via input device 124 requesting to view the first trial. At this point, as shown in Fig. 3C, controller 121 may change the operational mode of mirror-display device 140 to the display mode using signals 141. Controller 121 may also control device 140 to display the first trial. Therefore, by switching between operating modes of mirror-display device 140, user 111 may compare the user-appearance of the second trial with the user-appearance of the first trial and/or any other user-appearances previously stored in storage device 123.

[0063] Reference is now made to Fig. 4, which schematically illustrates a flow-chart of a method enabling comparing between one or more various appearances in accordance with some demonstrative embodiments of the invention. Although the invention is not limited in this respect, one or more operations of the method of Fig. 4 may be performed by one or more elements of system 100 (Fig. 1).

[0064] As indicated at block 410, the method may include, for example, setting the operating mode of a mirror-display device. For example, user 111 (Fig. 1) may initially set the operating mode of mirror-display device 140 (Fig. 1) to the mirror mode. Alternatively, display 140 (Fig. 1) may be designed to operate in the mirror mode by default whenever a new user logs into system 100 (Fig. 1).

[0065] As indicated at block 420, the method may also include, for example, posing in front of the mirror-display device. For example, user 111 (Fig. 1) may pose in front of mirror-display device 140 (Fig. 1) and check the user-appearance of a first trial of, e.g., clothing, shoes and/or any other apparel.

[0066] As indicated at block 430, the method may also include, for example, capturing an image of the user-appearance of the first trial. For example, user 111 (Fig. 1) may provide user command to device 120 (Fig. 1) commanding imaging device 130 (Fig. 1) to capture an image of the user-appearance of the first trial.

[0067] As indicated at block 440, the method may also include, for example, posing in front of the mirror-display device in a different user-appearance. For example, user 111 (Fig. 1) may change one or more items of environment such as, for example, furniture

and/or apparel, pose once again in front of mirror-display device 140 which may operate in mirror mode, and view a second user-appearance.

[0068] As indicated at block 450, the method may also include, for example, switching between operating modes of the mirror-display device. For example, user 111 (Fig. 1) may switch mirror-display device 140 (Fig. 1) between the mirror and the display mode. Accordingly, user 111 (Fig. 1) may be able to compare between the user-appearance of the first trial, and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (Fig. 1), and the user-appearance of the second trial.

[0069] According to some demonstrative embodiments of the invention, user 111 (Fig. 1) may indicate, and/or station 110 (Fig. 1) may be able to store, e.g., automatically, for each trial parameters, e.g., including shopping parameters, such as, for example, name of store, address of store, price, time and/or date of trial of apparel, name of salesperson, and the like. User 111 (Fig.1) may, for example, store the captured images of user-appearances in a removable or portable storage device, e.g., as described above with reference to Fig. 1, and may later review images of user-appearances while being able to ascribe every image to, e.g., a specific store and the like. In addition, user 111 may define, and/or controller 121 (Fig. 1) may be able to generate, and/or store in storage device 123 reminders, for example, alarms about, e.g., discounts, end of season sales and the like.

[0070] While certain features of the invention have been illustrated and described herein, many modifications, substitutions, changes, and equivalents may occur to those skilled in the art. It is, therefore, to be understood that the appended claims are intended to cover all such modifications and changes as fall within the true spirit of the invention.

CLAIMS

[0071] What is claimed is:

1. A system to enable appearance comparison, the system comprising:
5 at least one interactive imaging and display station, the station comprising:
 a mirror-display device capable of selectably operating in either or
 both a mirror mode or a display mode;
 an imaging device to capture one or more appearances from a
 field-of-view in front of said mirror-display device; and
10 an image control unit to select the mode of operation of said
 mirror-display device according to a user command.
2. The system of claim 1, wherein said image control unit includes an input device
to receive said user command from a user.
- 15 3. The system of claim 1, wherein said image control unit includes a storage device
 to store one or more images corresponding to said one or more appearances.
- 20 4. The system of claim 1, wherein said mirror-display device is capable of being
 partitioned into at least first and second simultaneously-displayable frames, the
 first frame selectably operable both in a mirror mode and a display mode, and the
 second frame operable in a mirror mode.
- 25 5. The system of claim 1, wherein said imaging device is capable of capturing three-
 dimensional images of said appearances.
6. The system of claim 1, wherein said mirror-display device is capable of
displaying images of appearances at predefined sequences.

7. The system of claim 1, wherein said image control unit is able to selectively enable a user to access images of appearances authorized to said user, based on user-identifying input received from said user.
- 5 8. The system of claim 1, wherein said at least one interactive imaging and display station comprises two or more interactive imaging and display stations able to communicate over a network.
9. The system of claim 8, wherein said two or more stations are able to communicate
10 between each other data representing images of appearances.
10. The system of claim 1, wherein said image control unit is able to control said mirror display device to display, during said display mode, one or more images corresponding to said appearances.
- 15 11. The system of claim 10, wherein the one or more images comprise one or more mirrored appearances.
12. A method to enable appearance comparison, the method comprising:
- 20 using a mirror mode of operation of a mirror-display device capable of being selectably operated in either a mirror mode or a display mode;
capturing an image corresponding to an appearance of a first trial from a field-of-view in front of said mirror-display device;
storing said image;
- 25 selecting the display mode of operation of said mirror-display device;
retrieving said image and displaying the image on said mirror-display device.

ABSTRACT

Some demonstrative embodiments of the invention include systems, devices and/or methods enabling appearance comparison. The system, according to some demonstrative embodiments, may include at least one interactive imaging and display station. The station may include, for example, a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode; an imaging device to capture one or more appearances appearing in a field of view in front of the mirror-display device; and/or an image control unit to select the mode of operation of the mirror-display device according to a user command. Other embodiments are described and claimed.

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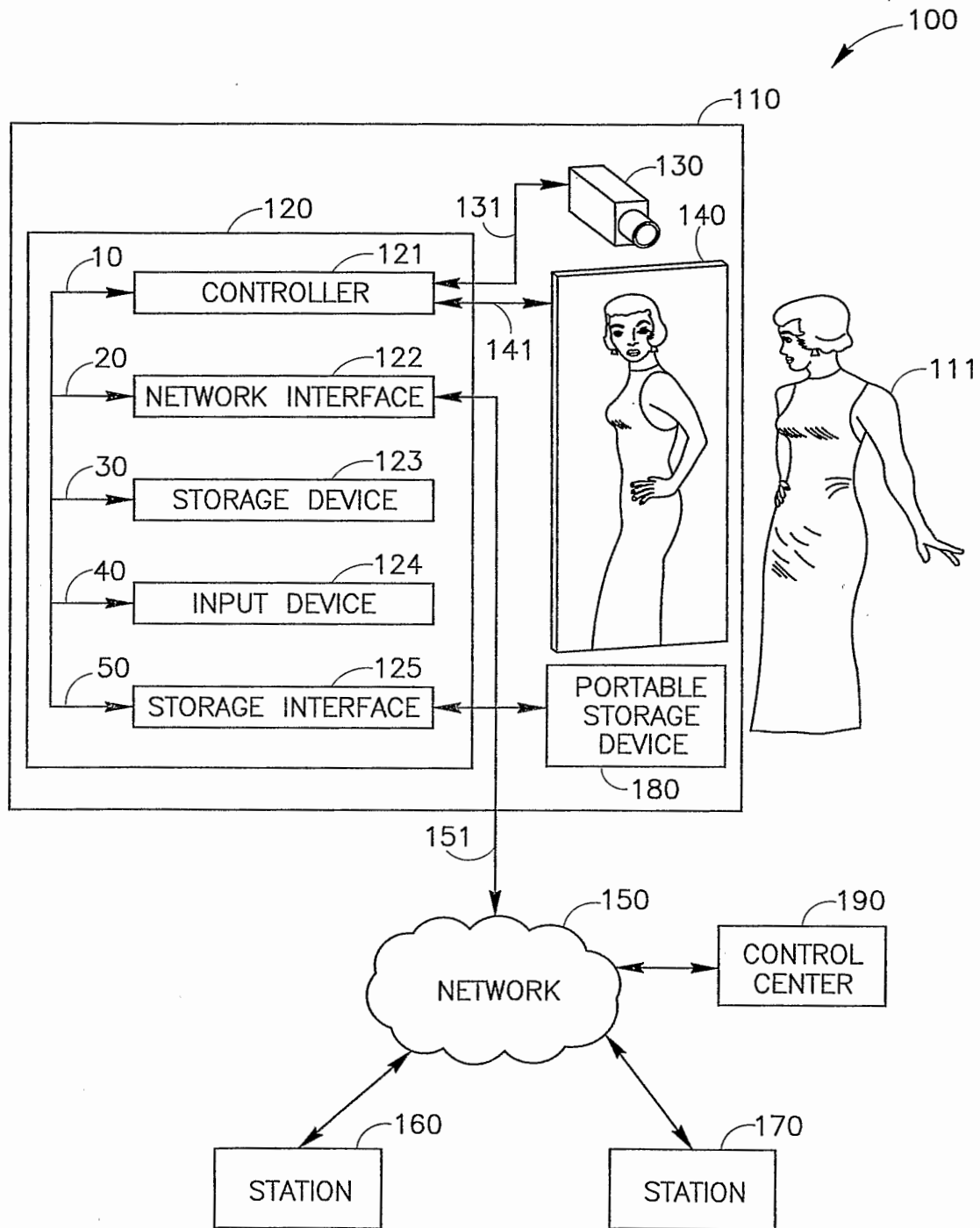


FIG.1

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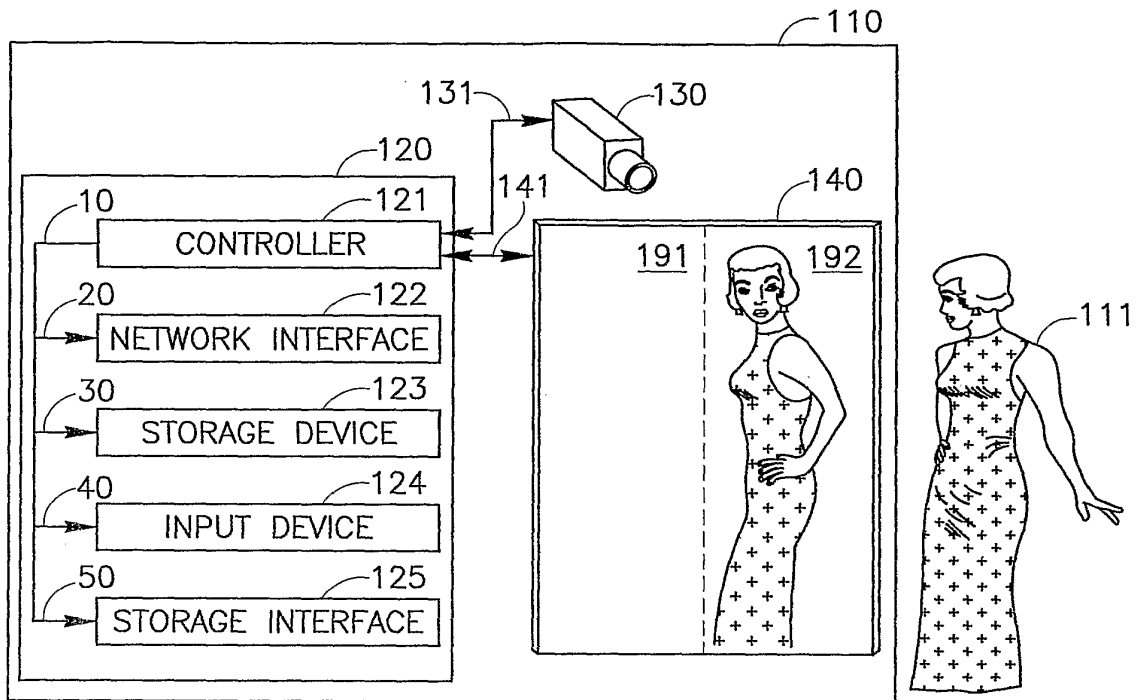


FIG. 2A

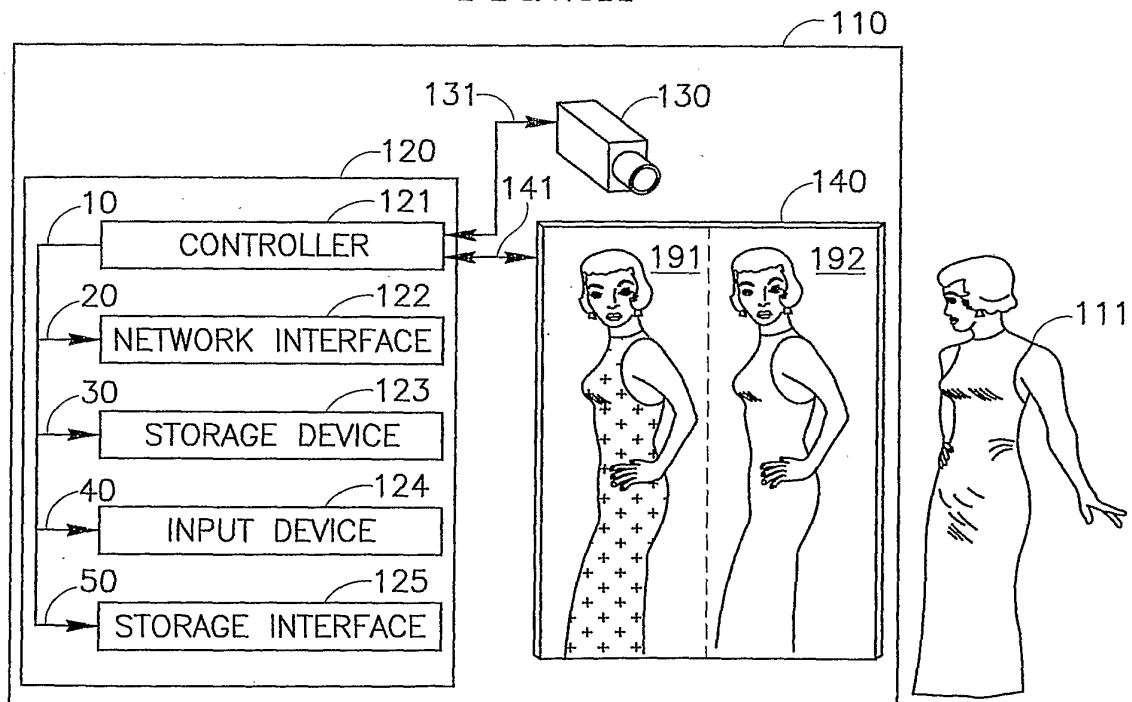


FIG. 2B

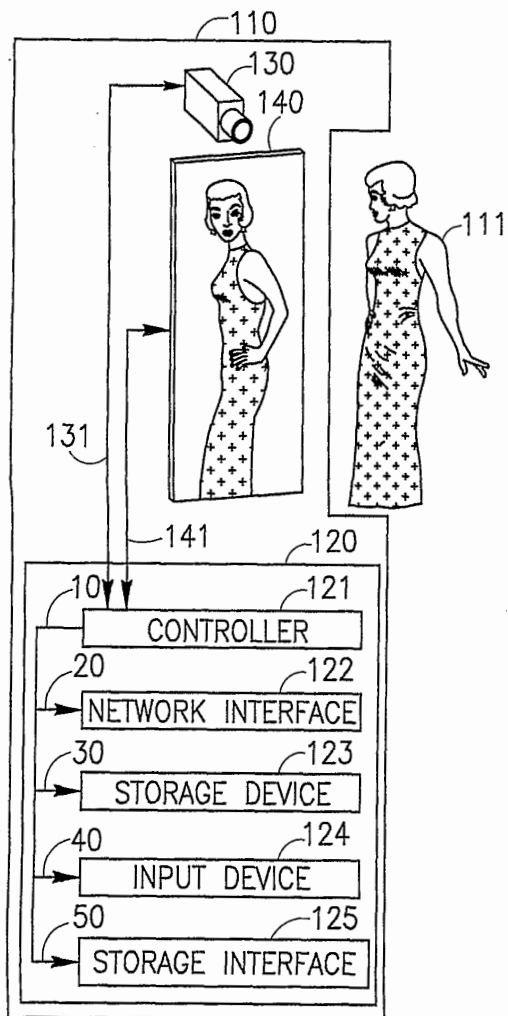


FIG. 3A

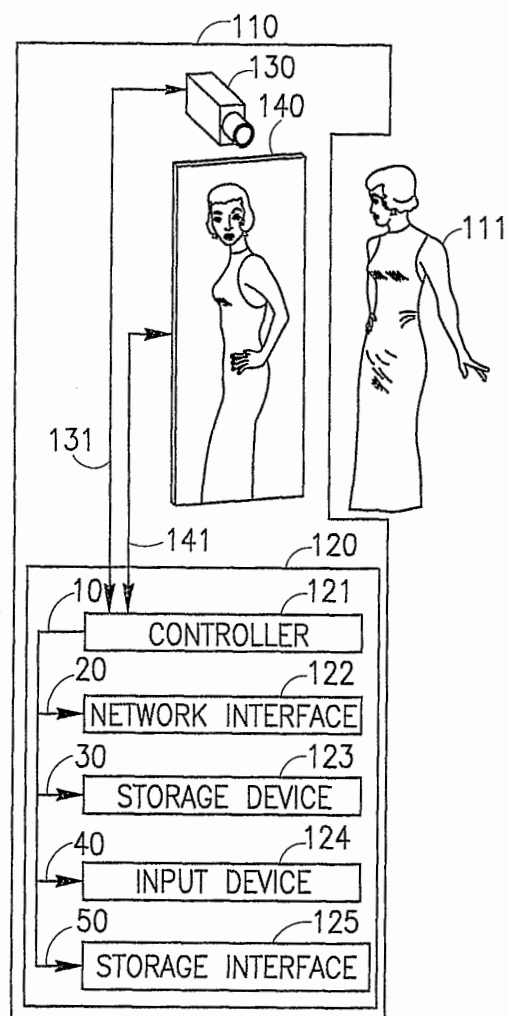


FIG. 3B

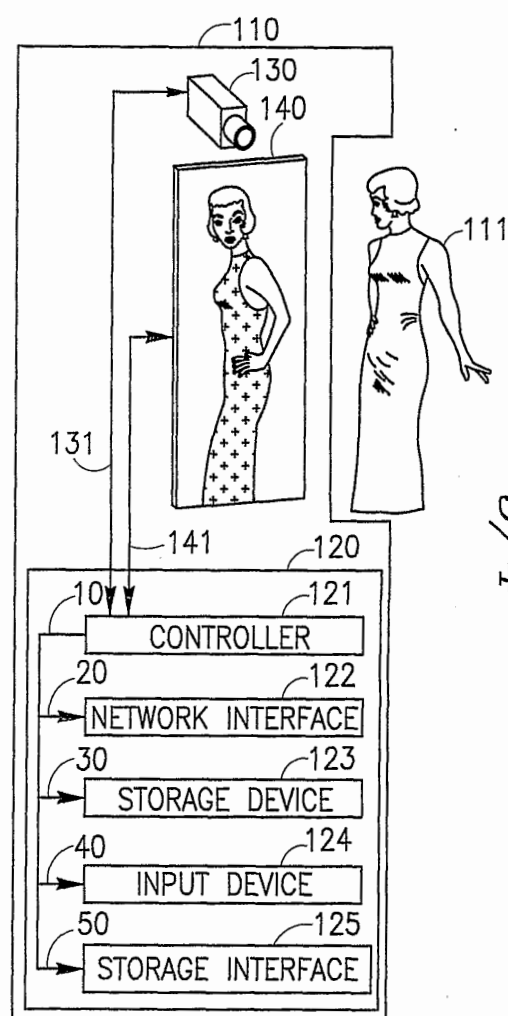


FIG. 3C

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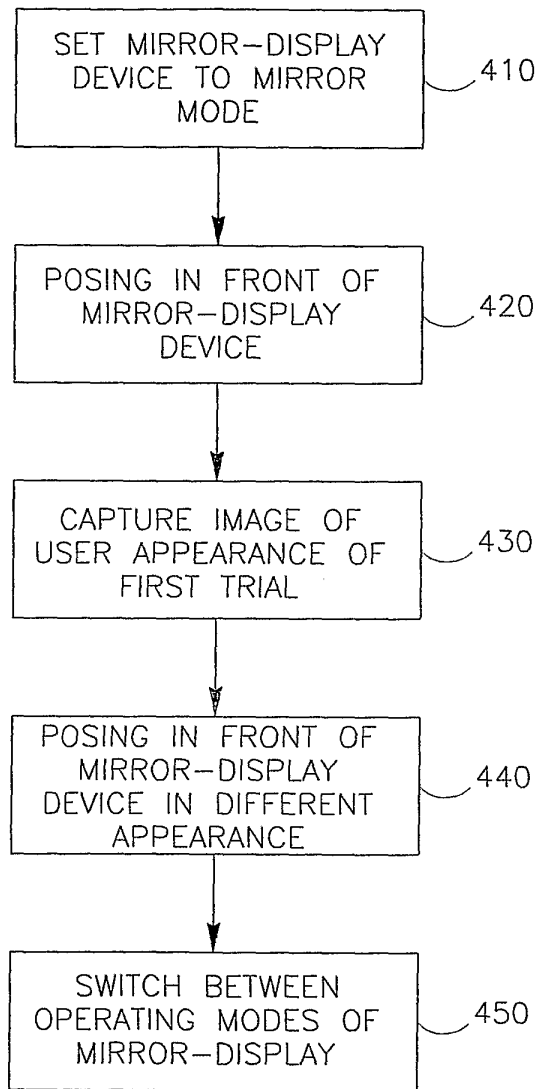


FIG. 4

PATENT APPLICATION FEE DETERMINATION RECORD					Application or Docket Number 13/088,369	
Substitute for Form PTO-875						
APPLICATION AS FILED - PART I						
(Column 1)		(Column 2)		SMALL ENTITY		OR
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)	OTHER THAN SMALL ENTITY	
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	82	N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	270	N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	110	N/A	
TOTAL CLAIMS (37 CFR 1.16(j))	12	minus 20 = *	x 26 =	0.00	OR	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2	minus 3 = *	x 110 =	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 \$270 (\$135 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		
			TOTAL	462	TOTAL	
* If the difference in column 1 is less than zero, enter "0" in column 2.						
APPLICATION AS AMENDED - PART II						
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)	OTHER THAN SMALL ENTITY
	Total (37 CFR 1.16(i))	*	Minus	**	=	RATE(\$)
	Independent (37 CFR 1.16(h))	*	Minus	***	=	ADDITIONAL FEE(\$)
	Application Size Fee (37 CFR 1.16(s))					OR
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR
			TOTAL ADD'L FEE		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".						
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/088,369	04/17/2011	3611	462	VIL-P-00092-US1C	12	2

CONFIRMATION NO. 8308

86530
Shiloh et al.
99 John St., Suite 2303
New York, NY 10038

FILING RECEIPT



OC000000047529647

Date Mailed: 05/10/2011

Receipt is acknowledged of this non-provisional 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 APPLICANT, 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 Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections 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**

Applicant(s)

Nissi Vilcovsky, Tokyo, JAPAN;

Power of Attorney: The patent practitioners associated with Customer Number 86530

Domestic Priority data as claimed by applicant

This application is a CON of 11/817,411 08/30/2007 PAT 7,948,481
which is a 371 of PCT/IL06/00281 03/01/2006
which claims benefit of 60/656,885 03/01/2005
and claims benefit of 60/656,884 03/01/2005

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/088,369**

Projected Publication Date: 08/18/2011

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

Preliminary Class

040

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/088,369	04/17/2011	Nissi Vilcovsky	VIL-P-00092-US1C

CONFIRMATION NO. 8308

86530
Shiloh et al.
99 John St., Suite 2303
New York, NY 10038

PUBLICATION NOTICE



OC000000049392541

Title:DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

Publication No.US-2011-0199294-A1

Publication Date:08/18/2011

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	First Named Inventor	Nissi Vilcovsky		
	Art Unit	2629		
	Examiner Name	HJERPE, RICHARD A		
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	Attorney Docket Number	VIL-P-00092-US1C		

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	3	00/22955	WO	A1	2000-04-27	FISCHER, ERIC		☐
	4	199 43 355	DE	A1	2001-03-15	BENESCH, MARKUS		☐
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	Filing Date		2011-04-17
	First Named Inventor	Nissi Vilcovsky	
	Art Unit	2629	
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	First Named Inventor	Nissi Vilcovsky
	Art Unit	2629
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	Attorney Docket Number	VIL-P-00092-US1C

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EP 1 372 092 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
17.12.2003 Bulletin 2003/51

(51) Int Cl.7: G06F 17/60

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(54) Interactive trying-on cubicle

(57) The present invention relates to a system for reproducing a preceding picture of a user wearing clothes or analog, comprising: a screen (4) to display at least a pre-registered picture of the user; a clothes type detector (8) to automatically identify the kind of clothes currently worn by the user; and a search unit (14) to extract automatically, from at least one central remote database (13), at least one pre-registered picture in which the user wears at least one article of clothing similar to or matchable with the current one.

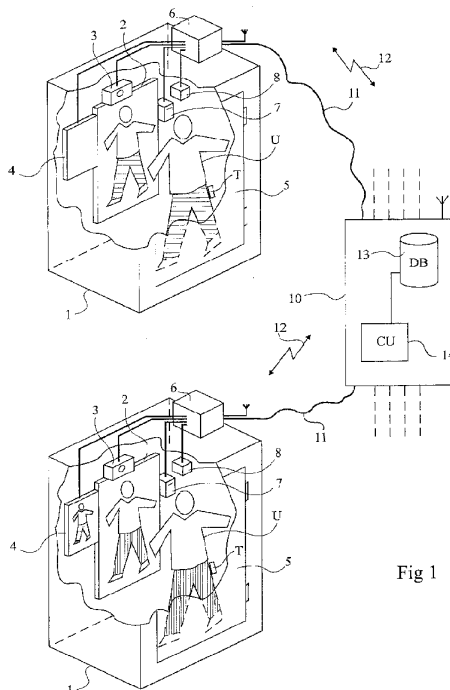


Fig 1

EP 1 372 092 A1

Description

FIELD OF THE INVENTION

[0001] The present invention relates to trying-on cubicles or rooms which are usually provided in clothes shops or analog.

BACKGROUND

[0002] As shoppers go from one changing room or trying-on cubicle of a shop to another, they have little way of remembering what they looked like in the clothes that they tried on in the first shop. Further, a shopper may try a first article of clothing in a first shop (for example a shirt or trousers), and another one in a second shop (for example a jacket), and may want matching these clothes.

[0003] There is a technical problem in giving the possibility for a shopper to compare or match some clothes that he tries in a current shop with respect to other clothes that he tried in a former one.

[0004] There is another technical problem in selecting, among an important number of pictures taken in a trying-on cubicle and representing the same shopper, some pictures to be compared with clothes of the same type tried by the shopper in another shop or to allow the shopper to match different types of clothes tried in different shops. Indeed, when trying clothes in a shop, a shopper usually wears several clothes and only some of these are to be compared with other clothes tried in another shop.

[0005] A purpose of the present invention is to provide a changing or trying-on cubicle or room giving a shopper the possibility to see what he looked like when trying on a former article of clothing and/or to compare or match at least one article of clothing he wore in a former shop.

[0006] Another purpose of the invention is to provide an automatic selection of pictures in which a shopper wears the same kind of clothes.

[0007] Another purpose of the invention is to provide a trying-on room or cubicle adapted to communicate with at least a central system in order to give to a shopper the possibility of comparing clothes of different shops.

BRIEF SUMMARY OF THE INVENTION

[0008] To attain the above purposes and others, the present invention provides a system for producing at least one picture of a person wearing clothes. Such a system comprises a screen to display at least one pre-registered picture; a mirror to reflect the current appearance of the user; a detector to identify the kind of clothes worn by the user; and a search unit to extract from a central remote database the pre-registered picture in which the user wore similar or matchable kind of clothes.

[0009] A trying-on room according to the invention is

provided with a camera or the like to take preferably fixed pictures to be displayed in other locations. According to the invention, a trying-on cubicle or room is provided with not only a mirror to reflect the current picture of an user wearing clothes, but also a screen to display a preceding picture. Such a picture is preferably taken in another location, i.e. in another trying-on cubicle, for example of another shop. However, the system of the present invention also works for a shopper trying on successively or not different clothes in a same shop (in a same trying-on room or not).

[0010] According to a preferred embodiment, the changing room comprises a detector to identify at least the type of clothes worn by the user. For example, such a detector can be a magnetic detector of transponder or any other kind of tag providing a wireless identification of the clothes.

[0011] The user may select between a comparison of clothes of the same kind or a matching of clothes to be wore together based, for example, on their color or kind. The system is then able to select among all the pictures of the user taken previously, a limited number of pictures corresponding to the choice of that user.

[0012] A communication between the trying-on rooms and the central system comprising the database in which are stored the pictures can be a wireless link or a wired link.

DESCRIPTION OF THE DRAWINGS

[0013] These purposes, features, and advantages of preferred, non limiting, embodiments of the present invention will be described by way of examples with reference to the accompanying drawings, in which:

Fig. 1 schematically represents trying-on rooms and the main elements of a central system according to one exemplary embodiment of the present invention; and

Fig. 2 illustrates, with a flowchart, the main steps of an exemplary implementation of the present invention.

[0014] For clarity, only the elements useful to the understanding of the invention have been shown in the drawings and will be disclosed hereafter. More specifically, the programming steps for implementing the invention will not be detailed as it will readily occur to those skilled in the art.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] Fig. 1 schematically represents a system according to one exemplary embodiment of the present invention. In Fig. 1, two trying-on rooms, or cubicles 1 have been shown. However, according to the invention, the number of trying-on rooms is not limited.

[0016] According to the invention, each room 1 is provided with a mirror 2 (which equips most of the conventional trying-on rooms). The mirror 2 is associated with a camera 3 to take a picture of a user looking in the mirror and wearing clothes. Alternatively, the mirror may be replaced with a screen in which are displayed the current picture taken by the camera 3. In this embodiment, the camera is able to take moving pictures.

[0017] According to the invention, each room 1 also comprises at least one screen 4 to display picture(s) of the current user taken in a previous trying-on room. Screen 4 may be separated from the mirror or screen 2, or be combined therewith. Rooms 1 are closable with a door or curtain 5.

[0018] Trying-on rooms according to the present invention are also provided with a control unit 6. Control unit 6 is preferably a computerized device for controlling the camera 3, the screen 4 and all the devices and elements that also comprise the system. An input device 7 such as a card reader (for loyalty cards or more generally any kind of identification cards), or a keyboard or analog, is provided so that the user can select some functionality of the system and for authentication.

[0019] Further, the system also comprises a detector 8 (preferably a wireless detector) able to identify the kind of clothes worn by the user.

[0020] According to a preferred embodiment of the present invention, the detector 8 is an electromagnetic transponder reader which is able to detect a tag or any analog passive or active label fixed to an article of clothing. Thus, one takes benefit of the fact that the clothes in a shop are most often equipped with electromagnetic labels or tags which can be used by the present invention to identify at least the kind of clothes. Tags may contain the type of clothes, its color, pattern, etc. The kind of product automatically detected by the system is used either to select pictures showing the user wearing clothes of the same type, or to select pictures in which the user wears clothes which may be matched with the current one.

[0021] Each trying-on room according to the present invention communicates with a central system 10 through wired 11 or wireless 12 links. The central system according to the invention includes at least a database 13 (DB) for storing the pictures taken in the different changing rooms. Indeed, once the user has tried an article of clothing in a first changing room, the system cannot know where a user will try another article of clothing to be compared with the previous one. The system 10 also comprises a central control unit 14 (CU) for controlling and synchronizing all the operation of the system. Alternatively, more than one database and more than one central system can be used. These systems then share the information.

[0022] A user U wearing clothes is represented in Fig. 1 with a silhouette in dotted lines. In a first trying-on room 1 (upper in the figure), the user U is wearing trousers with horizontal stripes. In the other trying-on room 1

(lower in the figure), the user U is wearing trousers with vertical stripes.

[0023] The operation of a system according to the present invention will be described hereafter in connection with Fig. 2, which illustrates, by way of a flowchart, an exemplary implementation of the invention.

[0024] Let us assume that, in a trying-on room according to the present invention, a user wears the clothes he chooses in a current shop, for example trousers with horizontal stripes (CLOTHES1, block 21) as shown in Fig. 1 (in the upper changing room).

[0025] If the user plans to compare or match the current article of clothing with another one, he enters an authenticant in the system. The authentication of the user can be made through a keyboard in which the user enters a specific code or through a loyalty card or smart card containing, for example, in a chip or on a magnetic track, the identification of the user. The system not only identifies the user but also the clothes that he wears (block 22, IDENTIFY USER/CLOTHES). The identification of the article of clothing concerns at least the kind of article of clothing (shirt, trousers, jacket, etc.) but preferably also the color and/or the pattern (striped, plain, etc.) and is contained, for example, in a label T (FIG. 1) attached to the article of clothing.

[0026] The authentication of the user is important not only to recognize this user in another trying-on room, but also because it is not desired that pictures can be taken without the agreement of the user.

[0027] Then, the system takes a picture (block 23, PICTURE), with camera 3 and stores that picture (block 24, STORE) with the identification of the user. The storage of the picture can be temporarily made in the control device 6 of the changing room which comprises a memory before transmission to the central system 10 for storing in the database 13.

[0028] Alternatively, the picture can be sent to the user's home, for example, through the Internet, to allow the user seeing the picture on its own computer.

[0029] Several pictures of the user wearing several clothes can be made in a same changing room before the user goes out to another shop. However, for simplicity, the invention will be described in case only one article of clothing is tried on in the first changing room.

[0030] When the user comes into another shop (or in the same shop, but after having wore another article of clothing), he may want comparing or matching the current article of clothing with a previous one. For example, supposing that the user U wears trousers having vertical stripes as shown in the lower room of Fig. 1 (block 25, CLOTHES2), he may want comparing the trousers with vertical stripes to the trousers with horizontal ones.

[0031] According to the invention, the user must then identify himself either with a keyboard or any entering device of the changing room or by introducing his authentication card in the reader 7. Further, the current article of clothing worn by the user has to be identified by the system (block 26, IDENTIFY USER/CLOTHES). As

previously, the system identifies the article of clothing (kind, color, and pattern) by detecting its label T.

[0032] The user then selects (block 27, COMPARE/MATCH) if he wants to compare the current article of clothing he wears to a previous one of the same kind, or if he wants to match the current article of clothing with another kind of article of clothing tried in a previous changing room. Such a selection can be done with a selection device (for example a two-buttons keyboard 9), which may be combined with the identification device 7, to indicate to the system 10 which kind of picture is desired. The central system 10 then searches the corresponding pictures (block 28, SEARCH). The selected pictures are transmitted to the control device 6 of the current room and the pictures are displayed (block 29, DISPLAY) on the screen 4. If there is more than one picture to display, one can either provide a scrolling display with a predetermined timing for each picture, or share the screen into several areas in which the different pictures are displayed.

[0033] To match the different types and/or colors and/or patterns of clothes, the central system 10 (alternatively the control device 6 of the current room) contains dressing rules. Such rules may be lists of clothes to be worn together, color matching or any rules which can be translated to be interpreted by a computerized system.

[0034] The current article of clothing worn by the user is also to be stored in the central system for a next comparison. Therefore, the camera 3 of the trying-on room also takes a picture (block 23') and transmits this picture to the central system to be stored (block 24').

[0035] An advantage of the present invention is that a shopper can not only see himself normally in a mirror with clothes on, but also view a picture of himself with other clothes on.

[0036] Another advantage of the present invention is that, with the automatic detection of the clothes worn by the user, the system is then able to automatically select the kind of pictures to be displayed.

[0037] The central system 10 of the invention or the control devices 6 of each trying-on room are accordingly able to select clothes depending on their type. For example, a list of clothes of same kind is stored in the central system 10 or in the control devices 6. Further, according to the preferred embodiment of the present invention in which the user can also match clothes of different kinds, the system also comprises lists or tables with the kinds of clothes which can be matched (for example, trousers with a jacket). Of course, if the pictures available for the user only contain one kind of clothes, the system does preferably not wait for a selection between matching and comparison, and considers a comparison mode.

[0038] A further advantage of the present invention is that, having stored different pictures of the user, these pictures can also be displayed on the own computer of the user (for example, transmitted through Internet).

[0039] Having thus described at least one illustrative

embodiment of the invention, various alterations, modifications and improvements will readily occur to those skilled in the art. In particular, implementing the invention with computerized devices in the ability of one with an ordinary skill in the art. Further, other elements having the same function thus described in the present specification can be provided in replacement. For example, the screen 4 and the mirror 2 can be combined, or more than one screen may be associated with a single mirror. With this respect, the size of the mirror and of the screen may be the same or different.

[0040] Furthermore, other detection devices may be provided either for identifying the user or for detecting the kind of the clothes. It should also be noted that a single picture can be taken with a user wearing more than one article of clothing. Then, the matching is preferably invalidated for the next changing room. Finally, the present invention may also apply to other wearing articles than clothes. For example, shoes, hats, glasses, etc.

[0041] Such alterations, modifications, and improvements are intended to be within the spirit and scope of the invention. Accordingly, the foregoing description is by way of example only and is not intended to be limiting. The invention is limited only as defined in the following claims and the equivalents thereto.

Claims

1. A system for reproducing a preceding picture of a user wearing clothes or analog, comprising:
 - a screen (4) to display at least a pre-registered picture of the user;
 - a clothes type detector (8) to automatically identify the kind of clothes currently worn by the user; and
 - a search unit (14) to extract automatically, from at least one central remote database (13), at least one pre-registered picture in which the user wears at least one article of clothing similar to or matchable with the current one.
2. The system of claim 1, further comprising a mirror (2) or analog for reproducing the current appearance of the user.
3. The system of claim 1, further comprising:
 - a camera (3) to take a picture of the user wearing clothes; and
 - a storage element (6) to store the picture with an identification of the user and an identification of the kind of article of clothing.
4. The system of claim 1, also comprising selecting tools (9) for the user between a comparison and a

matching of clothes.

5. The system of claim 1, also comprising a card reader (7) for identifying the user.

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6. The system according to claim 1, wherein the database comprises a table with dressing rules.

7. The system of claim 1, also comprising a link (11, 12) to a central remote system (10) comprising said central database (13).

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8. A trying-on room comprising a system according to any of claims 1 to 7.

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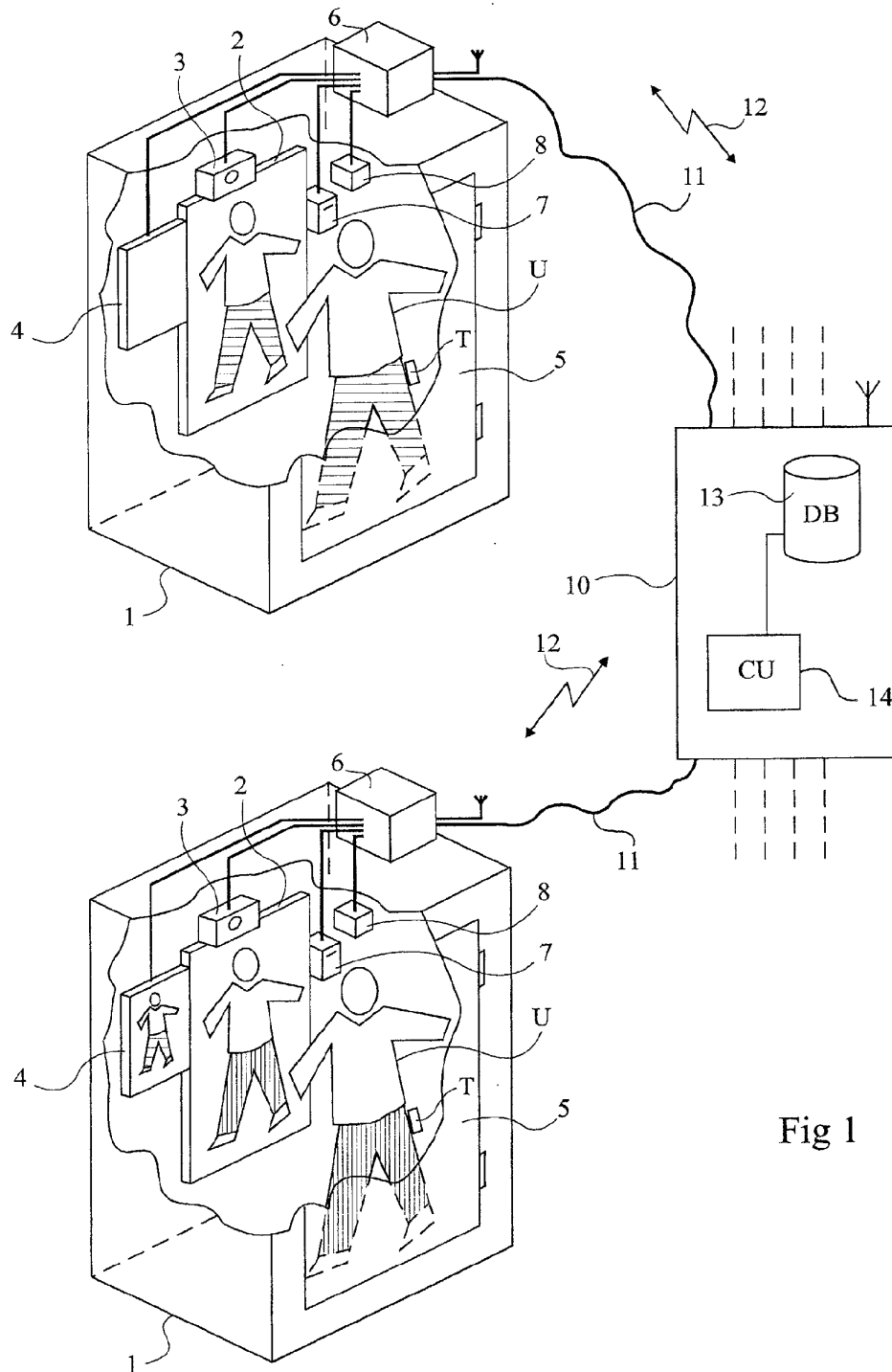


Fig 1

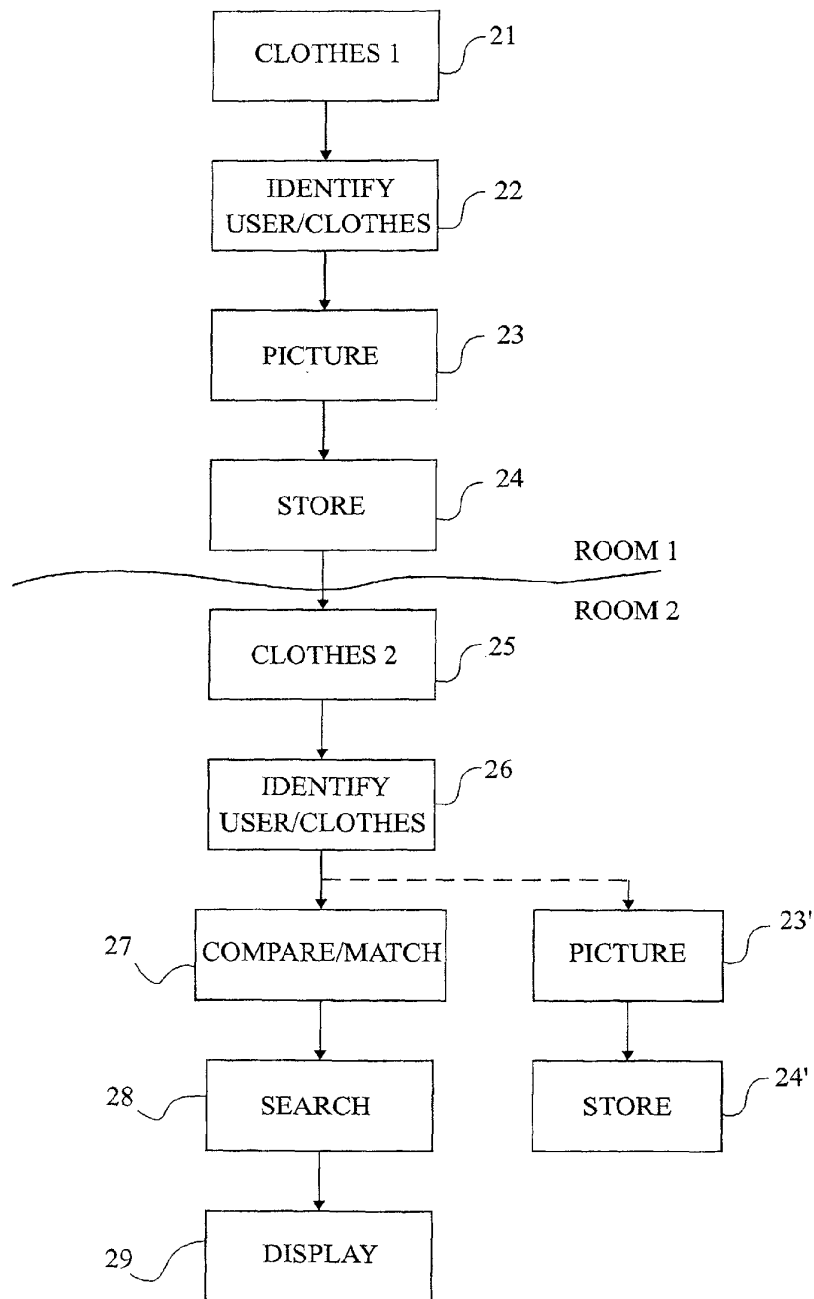


Fig 2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 35 4094

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)		
X	EP 0 636 993 A (OLYMPUS OPTICAL CO) 1 February 1995 (1995-02-01) * column 4, line 16 - column 6, line 43 * * column 8, line 15 - column 9, line 10 * * column 10, line 21 - column 11, line 13 * * figures 1,6,8 * ---	1-8	606F17/60		
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A	US 2002/045959 A1 (VAN OVERVELD CORNELIUS WILHELM) 18 April 2002 (2002-04-18) * paragraph '0062! - paragraph '0071!; figures 1,2 * * paragraph '0074! - paragraph '0076! * * paragraph '0081! - paragraph '0086! * * paragraph '0095! - paragraph '0098! * ---	1-8			
A	WO 01 45029 A (LENNON JERRY W) 21 June 2001 (2001-06-21) * page 4, line 5 - page 5, line 9 * * page 5, line 19 - page 6, line 8 * * page 13, line 12 - page 14, line 10 * * figure 1 * -----	1-8	<table border="1"> <thead> <tr> <th>TECHNICAL FIELDS SEARCHED (Int.Cl.7)</th> </tr> </thead> <tbody> <tr> <td>606F</td> </tr> </tbody> </table>	TECHNICAL FIELDS SEARCHED (Int.Cl.7)	606F
TECHNICAL FIELDS SEARCHED (Int.Cl.7)					
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The present search report has been drawn up for all claims					
Place of search THE HAGUE		Date of completion of the search 10 January 2003	Examiner Papastefanou, E		
<table border="0"> <tr> <td style="vertical-align: top;"> CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document </td> <td style="vertical-align: top;"> T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document </td> </tr> </table>				CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document	T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document				

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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The members are as contained in the European Patent Office EDP file on
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10-01-2003

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82



①⑨ **BUNDESREPUBLIK
DEUTSCHLAND**



**DEUTSCHES
PATENT- UND
MARKENAMT**

①⑫ **Offenlegungsschrift**
①⑩ **DE 100 31 965 A 1**

⑤① Int. Cl. 7:
H 04 N 1/00

②① Aktenzeichen: 100 31 965.3
②② Anmeldetag: 30. 6. 2000
④③ Offenlegungstag: 10. 1. 2002

DE 100 31 965 A 1

⑦① Anmelder:
Floegel, Eberhard, 30161 Hannover, DE

⑦② Erfinder:
gleich Anmelder

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

⑤④ Elektrospiegel

⑤⑦ Die Erfindung bezieht sich auf Bildschirme (1), die mittels einer eingebauten Kamera (3) als Spiegeleratz eingesetzt werden - insbesondere in Bekleidungsgeschäften und Kaufhäusern.

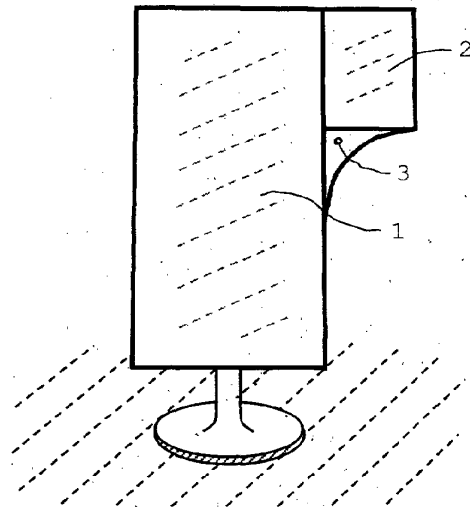
Über die Spiegelfunktion hinaus kann die Darstellung durch eine entsprechende Software u. a. bezüglich Farbe, Muster, Stoffart und Schnitt des getragenen Kleidungsstückes manipuliert werden. Ebenso kann die Farbdarstellung auf Tageslicht umgestellt werden.

Die Software sorgt auch dafür, daß die sich betrachtende Person stets in der vollen möglichen Größe auf dem Bildschirm dargestellt wird, unabhängig von der Entfernung zum Bildschirm.

Die Darstellung wird gespeichert, so daß vorhergehende Anproben jederzeit eingeblendet werden können. Diese gespeicherten Anproben können ebenfalls wie vorstehend manipuliert werden.

In einem zweiten Schritt kann die dargestellte Person per Software mit anderen Kleidungsstücken gezeigt werden. Informationen zum Kleidungsstück können zusätzlich auf einem kleineren Display (2) angezeigt werden.

Alle Funktionen sind über eine Fernbedienung steuerbar. Die Erfindung eignet sich insbesondere auch für Production-on-demand.



DE 100 31 965 A 1

Beschreibung

[0001] Die Erfindung bezieht sich auf Bildschirme die mittels einer eingebauten Kamera als Spiegeleratz eingesetzt werden – insbesondere in Bekleidungsgeschäften und Kaufhäusern.

[0002] Derartige Spiegel – hier Elektrospiegel genannt – sind bis dato nicht bekannt. Bekannt sind dagegen PC-Programme, die z. B. in Frisiersalons den Kunden verschiedene Frisurvorschläge auf dem Bildschirm darstellen können.

[0003] Die Aufgabe dieser Erfindung ist es jedoch, die Anprobe von Bekleidungsstücken zu erleichtern und zu unterstützen.

[0004] Dabei wird bei der erfindungsgemäßen Lösung die Funktion eines Ganzkörperspiegels durch einen Bildschirm im Hochformat nicht nur vollständig ersetzt, sondern durch die folgende Möglichkeiten wesentlich erweitert:

Das getragene Kleidungsstück kann auf dem Bildschirm mittels entspr. Software in Farbe, Muster, Stoffart und Schnitt abgeändert dargestellt werden – letzteres gilt z. B. auch für erforderliche Längenänderungen. Ebenso kann die Farbdarstellung unter Tageslichtbedingungen simuliert werden.

[0005] Die Software sorgt auch dafür, daß die sich betrachtende Person stets in der vollen möglichen Größe auf dem Bildschirm dargestellt wird, unabhängig von der Entfernung zum Bildschirm.

[0006] Die Darstellung wird gespeichert, so daß vorhergehende Anproben jederzeit eingeblendet werden können. Diese gespeicherten Anproben können ebenfalls wie vorstehend manipuliert werden.

[0007] In einem zweiten Schritt kann die dargestellte Person per Software mit anderen Kleidungsstücken gezeigt werden.

[0008] Informationen zum Kleidungsstück können zusätzlich auf einem kleinen Display angezeigt werden.

[0009] Die Bedienung erfolgt über dieses Display oder über eine Fernbedienung.

[0010] Aus dieser erweiterten Funktionalität ergeben sich zahlreiche Vorteile:

- verschiedene Versionen eines Kleidungsstückes erfordern kein mehrfaches Anprobieren;
- Stoffversionen, die nicht am Lager oder in der betr. Größe vorhanden sind, können trotzdem quasi anprobiert werden;
- in der erweiterten Version ist auch die Darstellung von Kleidungsstücken ohne das Anprobieren möglich;
- erforderliche Längenänderungen können in ihrer Auswirkung sofort dargestellt und vom Kunden begutachtet werden;
- die Wiederholbarkeit der Aufzeichnungen einer vorhergehenden Anprobe ermöglicht dem Kunden den direkten Vergleich;
- dadurch, daß die gesamte Funktionalität auch auf eine gespeicherte Anprobe angewendet werden kann, ist eine Darstellung der gewünschten Kleidungsstücke auch ganz ohne neuerliche Anprobe möglich.

[0011] Mit der betr. Software kann insbesondere auch Production-on-demand unterstützt werden, indem die Bestelldaten direkt elektronisch weitergeleitet werden. Hierzu wäre es dann zusätzlich erforderlich, daß die Kundenmaße im System gespeichert sind – möglichst ermittelt durch einen Ganzkörper-Scanner.

[0012] Anhand der Zeichnung wird ein derartiger Elektrospiegel – auf rein schematische Weise bezüglich seiner äußeren Form – näher veranschaulicht:

Dabei ist der Elektrospiegel **1** – nach heutiger Technik vorzugsweise ein Plasmabildschirm – auf einem Drehgestell **4** hochkant montiert, und trägt seitlich ein kleineres Display **2** unter dem auch die Kamera **3** plaziert ist.

[0013] Die Größe des Plasmabildschirmes **1** beträgt vorzugsweise zumindest 45×90 cm.

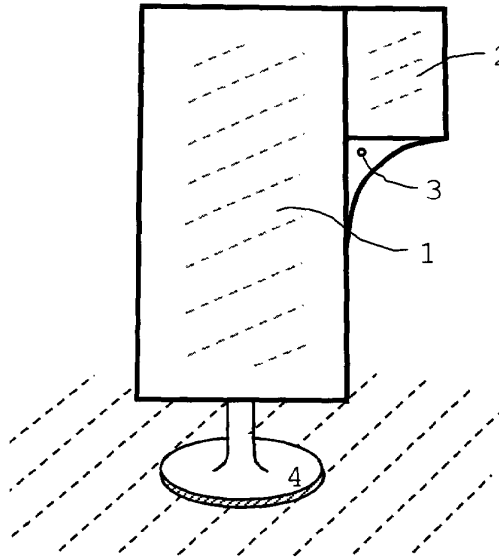
[0014] Die Erfindung ist nicht auf die dargestellte Ausführungsform beschränkt. Insbesondere kann Form, Größe und Platzierung des Elektrospiegels – z. B. auch in Wandaufhängung – variiert werden.

Patentansprüche

1. Bildschirm mit vorzugsweise mehr als 30-Zoll-Diagonale, **dadurch gekennzeichnet**, daß dieser **(1)** hochkant montiert ist und eine vorzugsweise im Gehäuse integrierte digitale Kamera **(3)** aufweist, derart, daß mittels Computertechnik die von der Kamera aufgenommene Bildsequenz so auf dem Bildschirm **(1)** dargestellt wird, daß dieser als Spiegeleratz – hier Elektrospiegel genannt – dienen kann, insbesondere für Bekleidungsanproben.
2. Elektrospiegel nach Anspruch 1, dadurch gekennzeichnet, daß die sich betrachtende Person vorzugsweise stets so groß wie möglich auf dem Bildschirm **(1)** dargestellt wird, unabhängig von der Entfernung zwischen dieser Person und dem Bildschirm.
3. Elektrospiegel nach Anspruch 1, dadurch gekennzeichnet, daß eine auf diese Weise gefilmte Anprobe gespeichert und wiederholt auf dem Bildschirm **(1)** eingeblendet werden kann.
4. Elektrospiegel nach Anspruch 1, dadurch gekennzeichnet, daß die Farbdarstellung auf dem Bildschirm **(1)** entsprechend den Tageslichtbedingungen erfolgen kann.
5. Elektrospiegel nach Anspruch 1, dadurch gekennzeichnet, daß ein Kleidungsstück der auf dem Bildschirm **(1)** dargestellten Person bezüglich Farbe und/oder Muster und/oder Stoffart und/oder Schnitt und/oder erforderlicher Längenänderungen geändert auf dem Bildschirm **(1)** dargestellt werden kann.
6. Elektrospiegel nach Anspruch 1, dadurch gekennzeichnet, daß die betr. Person auch mit anderen Kleidungsstücken als sie gerade trägt auf dem Bildschirm **(1)** dargestellt werden kann.
7. Elektrospiegel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß die in diesen Ansprüchen beschriebenen Funktionen zumindest teilweise auch für gespeicherte Anproben entsprechend durchgeführt werden können.
8. Elektrospiegel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß Informationen zu den dargestellten Kleidungsstücken auf einem zusätzlichen kleineren Display **(2)** angezeigt werden können.
9. Elektrospiegel nach einem der vorangehenden Ansprüche, dadurch gekennzeichnet, daß vorzugsweise alle Funktionen auch über eine Fernbedienung gesteuert werden können.

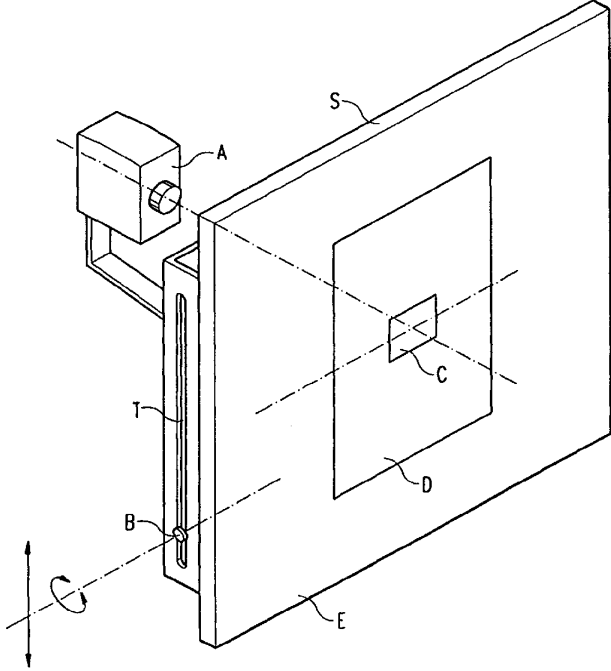
Hierzu 1 Seite(n) Zeichnungen

- Leerseite -





PCT WELTORGANISATION FÜR GEISTIGES EIGENTUM
Internationales Büro
INTERNATIONALE ANMELDUNG VERÖFFENTLICHT NACH DEM VERTRAG ÜBER DIE
INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES PATENTWESENS (PCT)

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		(43) Internationales Veröffentlichungsdatum:	27. April 2000 (27.04.00)
(21) Internationales Aktenzeichen: PCT/EP99/07638 (22) Internationales Anmeldedatum: 12. Oktober 1999 (12.10.99)		(81) Bestimmungsstaaten: AU, JP, US, europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).	
(30) Prioritätsdaten: 198 48 589.1 21. Oktober 1998 (21.10.98) DE 198 52 876.0 16. November 1998 (16.11.98) DE 199 01 719.0 18. Januar 1999 (18.01.99) DE 199 04 284.5 3. Februar 1999 (03.02.99) DE		Veröffentlicht <i>Mit internationalem Recherchenbericht. Vor Ablauf der für Änderungen der Ansprüche zugelassenen Frist; Veröffentlichung wird wiederholt falls Änderungen eintreffen.</i>	
(71)(72) Anmelder und Erfinder: FISCHER, Eric [DE/DE]; St.-Rita-Weg 15, D-82041 Oberhaching (DE).			
(74) Anwälte: BOHNENBERGER, Johannes; Meissner, Bolte & Partner, Postfach 86 06 24, D-81633 München (DE) usw.			
(54) Title: SYSTEM FOR SUPPORTING THE SELECTION OF ARTICLES WITH THE AID OF A VIDEO CAMERA (54) Bezeichnung: SYSTEM ZUM UNTERSTÜTZEN DER AUSWAHL VON ARTIKELN MIT HILFE EINER VIDEOKAMERA			
(57) Abstract Disclosed is a sales system comprising a mirror, in which a customer can see himself with a sales object, e.g. a pair of glasses, a garment, a piece of jewelry or the like. Said system includes a video camera that is mounted in relation to the mirror in such a way that the customer can be picked up by the video camera when the customer is looking at himself in the mirror, a storage device that may be actuated by the customer or a third person for storing and playing back images recorded by the video camera and an image playback device for playing back the recorded images to be viewed by the customers.			
(57) Zusammenfassung Es wird ein Verkaufssystem mit einem Spiegel beschrieben, in welchem ein Kunde sich mit einem Verkaufsobjekt, z.B. einer Brille, einem Kleidungsstück, Schmuck oder dergleichen, betrachten kann, und das aufweist: eine Videokamera, welche relativ zum Spiegel so angeordnet ist, daß der Kunde, wenn er sich im Spiegel betrachtet, von der Videokamera aufnehmbar ist; eine Speichereinrichtung, die vom Kunden oder einer dritten Person zum Speichern und Wiedergeben von Bildern, die von der Videokamera aufgenommen wurden, betätigbar ist, und eine Bildwiedergabeeinrichtung zum Wiedergeben der aufgenommenen Bilder zur Betrachtung durch den Kunden.			
			

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SYSTEM ZUM UNTERSTÜTZEN DER AUSWAHL VON ARTIKELN MIT HILFE EINER VIDEOKAMERA

Beschreibung

Die Erfindung betrifft ein Verkaufssystem mit einem Spiegel, in dem sich ein Kunde mit einem Verkaufsobjekt betrachten kann, wobei er gleichzeitig durch eine Videokamera aufgenommen wird.

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Es ist bekannt, im Verkauf Videogeräte einzusetzen, mit denen der Kunde mit verschiedenen Gegenständen, die er möglicherweise kaufen möchte, abgelichtet wird. Solche Videogeräte können im Self-Service, oder auch durch Verkaufspersonal bedient werden. Der Kunde kann sich das von der Videokamera aufgenommene Bild in einem Monitor betrachten. Da der Kunde sein Bild im Monitor betrachtet, wird er auch, während er verschiedene Verkaufsobjekte anprobiert, seine Aufmerksamkeit dem Monitor und dem darin gezeigten Bild zuwenden. Durch die Konzentration auf den Monitor besteht aber die große Gefahr, daß das Auftreten des Kunden und damit sein Erscheinungsbild zusammen mit dem anzuprobierenden Verkaufsobjekt nicht mehr natürlich wirkt und der unerwünschte sogenannte „Off-Set“-Blickwinkel entsteht.

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Aufgabenstellung der vorliegenden Erfindung ist es, diese bisher im Zusammenhang mit der Verwendung von Videokameras beim Verkauf verbundenen Nachteile zu vermeiden, und insbesondere den sogenannten „Off-Set“-Effekt, und vom Kunden während der Anprobe ein „vertrautes“ Bild von sich selbst zu machen.

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Diese Aufgabenstellung wird mit dem Gegenstand der vorliegenden Erfindung gelöst.

Gegenstand der Erfindung ist ein Verkaufssystem nach
5 Patentanspruch 1.

Zweckmäßige Ausgestaltungen dieses Systems sind Gegenstand der Ansprüche 2 bis 17.

10 Weiterer Gegenstand ist die Verwendung des erfindungsgemäßen Verkaufssystems zur Überwachung von Räumen, Raumabschnitten oder dergleichen Gebäudeteilen nach Anspruch 18.

Ein weiterer Gegenstand der Erfindung ist auch ein Spiegel,
15 der sich zur Verwendung in einem erfindungsgemäßen Verkaufssystem eignet, nach Anspruch 19. Zweckmäßige Ausgestaltungen davon sind Gegenstand der Ansprüche 20 bis 22.

20 Erfindungsgemäß wird ein Verkaufssystem mit einem Spiegel bereitgestellt, in welchem ein Kunde sich mit einem Verkaufsobjekt, z.B. einer Brille, einem Kleidungsstück, Schmuck oder dergleichen, betrachten kann, und das gekennzeichnet ist durch eine Videokamera, welche relativ zum
25 Spiegel so angeordnet ist, daß der Kunde, wenn er sich im Spiegel betrachtet, damit aufgenommen werden kann, eine Speichereinrichtung, die vom Kunden oder einer dritten Person zum Speichern und/oder Wiedergeben von Bildern, die von der Videokamera aufgenommen wurden, betätigbar ist, und eine
30 Bildwiedergabeeinrichtung zum Wiedergeben der aufgenommenen Bilder zur Betrachtung durch den Kunden.

Durch dieses erfindungsgemäße Verkaufssystem ist es möglich, ein unnatürliches Verhalten (z.B. eine unnatürliche
35 Blickrichtung, Augenstellung und Körperhaltung) und eine

unnatürliche Abbildung durch die Videokamera, und insbesondere den „Off-Set“-Effekt zu vermeiden.

Beim erfindungsgemäßen Verkaufssystem wird, wenn der Kunde
5 sich mit einem Verkaufsobjekt im Spiegel betrachtet, das Bild
durch die vorzugsweise hinter dem Spiegel und für den Kunden
nicht sichtbare Videokamera festgehalten, und als „Live-
Spiegelbild“ in der Bildwiedergabeeinrichtung gezeigt. Die
Aufmerksamkeit des Kunden richtet sich also, so wie bei einer
10 normalen Anprobe vor einem Spiegel, auf sein Spiegelbild im
Spiegel, und nicht auf den Monitor, wodurch das normale und
natürliche Verhalten während einer solchen traditionellen
Anprobe vor einem Spiegel erhalten bleibt, und der Kunde
seine Aufmerksamkeit nicht dem Monitor zuwendet, sondern
15 seinem „Live-Spiegelbild“. Durch die erfindungsgemäß
vorgesehene, mit der Videokamera operativ verbundene
Speichereinrichtung und die Bildwiedergabeeinrichtung kann
der Kunde dann in Ruhe nach der „natürlichen Anprobe vor dem
Spiegel“ die gespeicherten Bilder oder Bildsequenzen beliebig
20 abrufen und miteinander vergleichen.

Als Spiegel lassen sich im allgemeinen solche verwenden, wie
sie für bestimmte Verkaufsobjekte, z.B. Kleidungsstücke,
Schmuck, Brillen usw., üblicherweise verwendet werden.

25 Vorzugsweise ist der Spiegel zusammen mit der Videokamera
derart einstellbar, daß der Kunde unabhängig von seiner
Körpergröße, einem zu betrachtenden Körperabschnitt und/oder
der Position (z.B. sitzend oder stehend) den Spiegel nach
30 seinem Blickfeld einstellen kann; dadurch wird wieder das
natürliche Verhalten, wie es der Kunde vor für bestimmte
Verkaufsobjekte angepaßten Spiegeln gewohnt ist, erhalten.

Besonders zweckmäßig ist es, wenn die erfindungsgemäß
35 verwendeten Spiegel mit einem semitransparenten Bereich

ausgestattet sind. Die Videokamera befindet sich dann hinter dem Spiegel und ist mit dem Spiegel zusammen beweglich so montiert, daß sie durch den semitransparenten Bereich hindurch Bilder vom Kunden aufnehmen und der Kunde sich auch
5 im semitransparenten Bereich des Bilds betrachten kann. Der Spiegel kann dabei auch so ausgestaltet sein, daß die Grenzen des semitransparenten Bereichs des Spiegels vom Kunden nicht oder kaum bemerkt werden. Der Kunde nimmt die hinter dem Spiegel befindliche Videokamera gar nicht wahr, und führt die
10 Anproben wie auf bisher gewohnte Weise durch, wodurch das natürliche Verhalten erhalten bleibt, und die Gefahr eines unnatürlichen Betrachtungswinkels und insbesondere die des „Off-Set“-Effekts weitgehend ausgeschaltet ist.

15 Gegenstand der Erfindung ist auch ein Spiegel, der zur Verwendung in einem erfindungsgemäßen Verkaufssystem geeignet ist, dadurch gekennzeichnet, daß der Spiegel einen für den Betrachter erkennbaren Bereich aufweist, auf der der Betrachter seine Aufmerksamkeit lenkt und der auf diese Weise
20 zur Zone des Augenkontaktes des Betrachters wird.

Vorzugsweise liegt dieser Bereich eines optimalen Augenkontaktes in einem zentralen Bereich des Spiegels. Dieser Bereich kann zweckmäßigerweise durch Einfärben, Tönen
25 oder ähnliche Markierungseinrichtungen markiert werden, um für den Betrachter leicht erkennbar zu sein. Dadurch wird der Betrachter dann auch veranlaßt werden, seine Aufmerksamkeit und damit die Blickrichtung diesem Bereich zuzuwenden, wodurch der Bereich zu einer Zone eines optimalen
30 Augenkontakts vom Betrachter wird, was wieder zu einer natürlichen Erscheinungsform des Gesamtbildes beitragen kann.

In einer erfindungsgemäßen Ausführungsform, insbesondere für den Fall, daß sich im erfindungsgemäßen Verkaufssystem die

Kamera hinter dem Spiegel befindet ist, dieser Bereich semitransparent ausgestaltet.

Als Materialien für den Spiegel und die semitransparenten Bereiche des Spiegels können bekannte und übliche Materialien für Spiegel und semitransparente Spiegel verwendet werden. Als semitransparente Spiegelmaterialien können z.B. solche mit 50 % Durchlässigkeit und 50 % Reflektion des Lichtes verwendet werden; die Verringerung der Lichtdurchlässigkeit um 50 % kann z.B. durch Tönen des Glases, üblicherweise unter Verwendung eines Grau- oder Brauntönen, bewirkt werden. Semitransparente Spiegel lassen z.B. 30 % des auffallenden Lichtes hindurch, und reflektieren 70 % davon, obwohl auch andere Bereiche und deren Kombinationen möglich sind.

Insbesondere abhängig von der Art der Verkaufsobjekte kann es zweckmäßig sein, den gesamten Spiegel oder vorzugsweise bestimmte Teile davon, wie z.B. die Außenränder, mit Grautönen oder Farbtönen, zu versehen. Der semitransparente Bereich des Spiegels ist vorzugsweise in einem zentralen Bereich des Spiegels ausgebildet, und insbesondere in einer Zone eines optimalen Augenkontaktes.

Vorzugsweise wird der semitransparente Bereich des Spiegels von seiner Fläche her minimiert und zwar derart, daß der von der Kamera erfaßbare Bildausschnitt von den Rändern des semitransparenten Bereiches „umrahmt“ wird, also keine Verkleinerung erfährt. Bei einem vom Durchmesser her kleinen Objektiv, das noch dazu nahe am Spiegel montiert ist, kann darum der semitransparente Bereich sehr klein sein. Dies hat zur Folge, daß selbst bei starkem Umgebungslicht, wie es beispielsweise im Freien auf der Straße vorherrscht, das Spiegelbild optimal ist und der transparente Bereich praktisch nicht stört. Dann nämlich, wenn ein sehr großer transparenter Spiegel bei sehr heller Umgebung benutzt wird,

verblaßt das Spiegelbild, so daß für den Kunden eine sehr unnatürliche Situation entsteht.

- Unter den vorgenannten „Außenrändern“ des Spiegels ist der Bereich des Spiegels zu verstehen, in welchem sich der Kunde zwar sehen kann, der aber nicht von der Videokamera aufgenommen wird. Es wird somit in dem Spiegel ein „mittelgroßes“ Feld durch die Außenränder definiert, das gerade so groß ist wie der Aufnahmebereich der Kamera, der durch die Brennweite ihres Objektivs usw. bestimmt ist. Der Kunde sieht dadurch, ob der ihn interessierende Bildausschnitt auch tatsächlich aufgenommen wird. Darüberhinaus wird durch die Abgrenzung, die natürlich auch als einfacher Rahmen ausgebildet sein kann, der Kunde unwillkürlich dazu gebracht, sich so zu positionieren, daß die ihn interessierenden Bereiche gut als Spiegelbild sichtbar und damit auch gleichzeitig exakt von der Kamera aufnehmbar sind. Andererseits wird dadurch, daß das Gesamt-Spiegelbild erheblich größer ist als der aufgenommene Bildausschnitt, sichergestellt, daß der Kunde trotz Konzentration auf die ihm wichtigen Bildbereiche einen natürlichen Eindruck von seiner Gesamterscheinung erhält und nicht versucht ist, weiter zurückzutreten, um eben diese Gesamterscheinung zu sehen. Dies ist insbesondere deshalb so wichtig, weil die hier gezeigte Erfindung besonders für den Self-Service-Bereich Verwendung finden kann, also kein mit dem Umgang der Vorrichtung erfahrener Verkäufer anwesend ist bzw. sein muß.
- Die Speichereinrichtung, die vom Kunden oder einer dritten Person zur Speicherung und/oder zur Wiedergabe von Bildern, die von der Videokamera aufgenommen wurden, bedient werden kann, ist vorzugsweise so ausgestaltet, daß das Bild (Standbild) und/oder Bildsequenzen beliebig zeitlich versetzt und/oder gleichzeitig („Bild im Bild“) abgerufen und

miteinander verglichen werden können. Auf diese Weise ist es möglich, daß mehrere während einer „natürlichen Anprobe“ vor dem Spiegel getestete Verkaufsobjekte in Ruhe miteinander verglichen werden können; der Kunde kann also die einzelnen
5 Anproben, die er in gewohnter Weise im Spiegel zeitlich versetzt durchgeführt hat, gleichzeitig betrachten und damit direkt und gleichzeitig vergleichen.

Mit der Speichereinrichtung ist operativ eine
10 Bildwiedergabeeinrichtung zum Wiedergeben der aufgenommenen Bilder zur Betrachtung durch den Kunden verbunden. Die Bildwiedergabeeinrichtung zum Wiedergeben der aufgenommenen Bilder und zur Betrachtung durch den Kunden ist z.B. als Monitor ausgestaltet. Auf dem Monitor werden die Bilder
15 (einzelne Standbilder (Stillstandprojektion) und/oder Bildsequenzen ausgewählter Länge) gezeigt und können auf diese Weise direkt verglichen werden; das Abrufen von in der Speichereinrichtung gespeicherten Bildern kann z.B. durch einen Monitor, der als Berührungsschirm ausgestaltet ist,
20 oder durch Bedienungstasten erfolgen. Auf diese Weise ist es möglich, Bilder mehrmals zu betrachten, dann z.B. eine engere Auswahl zu treffen, und dann nach einem nochmaligen Vergleich innerhalb der engeren Auswahl eine endgültige Auswahl zu treffen.

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In einer weiteren Ausführungsform ist die Möglichkeit vorgegeben, die Wiedergabe der aufgenommenen Bilder als (seitenverkehrtes) Spiegelbild oder als echtes Abbild (entsprechend einem Foto) zu bewirken. Im ersten Fall sieht
30 sich der Kunde auf dem Monitor (bzw. auf einem ausgedruckten Bild) so, wie er sich normalerweise im Spiegel sieht, im anderen Fall sieht sich der Kunde so, wie ihn eine andere Person wahrnimmt oder wie er auf einer Fotografie erscheint. Diese Seitenumkehr kann beispielsweise durch ein an sich
35 bekanntes Vertauschen der einzelnen Bildelemente entlang

einer vertikalen Symmetrieachse geschehen. Diese Möglichkeit ist besonders für solche Kunden wichtig, die sich nicht gerne in Film- oder Fotoaufnahme sehen sondern lieber nach Art des ihnen geläufigen Spiegelbilds betrachten.

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In einer Ausführungsform kann die Bildwiedergabeeinrichtung auch als Druckeinrichtung zum Ausdrucken einzelner Standbilder ausgestaltet sein, die mit der Speichereinrichtung operativ verbunden ist. In einer

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bevorzugten Ausführungsform besteht die Bildwiedergabeeinrichtung aus einem Monitor und einer Druckeinrichtung; dadurch ist es möglich, zunächst Bilder oder Bildsequenzen im Monitor zu betrachten und zu vergleichen, und dann nach einer gegebenenfalls engeren

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Auswahl durch die Druckeinrichtung Bilder auszudrucken, die dann z.B. nach Hause mitgenommen werden können, um dort in Ruhe eine endgültige Entscheidung zu treffen.

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Bildwiedergabeeinrichtungen, z.B. Monitor und/oder Druckeinrichtung, sind vorzugsweise so ausgestaltet, daß sie auch Ausschnitte, Vergrößerungen und/oder Verkleinerungen, oder Bilder mit veränderter Helligkeit, bereitstellen können, sowie seitenverkehrte Bilder.

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Für den Fall, daß sich die Videokamera hinter dem Spiegel befindet, ist sie in einem die Kamera umschließenden Raum hinter dem Spiegel montiert, der lichtdicht abgeschlossen werden kann. Zweckmäßigerweise befindet sie sich in einem hinter dem Spiegel angebrachten Gehäuse, das lichtdicht abgeschlossen werden kann und zusammen mit der Kamera eine Einheit bildet, die als solche bewegt und entfernt werden kann.

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Das erfindungsgemäße Verkaufssystem weist vorzugsweise auch eine Beleuchtungseinrichtung auf, die zum Beleuchten der von

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der Videokamera aufzunehmenden Situation, d.h. also des Kundens in verschiedenen Anprobefituationen, dient, und die vorzugsweise steuerbar und/oder einstellbar ausgebildet und angebracht ist.

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Der Kunde soll sich zweckmäßigerweise, insbesondere auch abhängig von der Art der Verkaufsobjekte, unter einer kontrollier- und steuerbaren Beleuchtung befinden, die nicht nur dem Zweck dienen soll, richtig belichtete und gut
10 ausgeleuchtete Bilder des Kunden aufnehmen zu können, sondern auch, die anzuprobierenden Verkaufsobjekte im richtigen Licht betrachten zu können. Dazu ist sowohl die Art und Stärke der Beleuchtungsquelle, als auch die Position der Beleuchtungsquelle innerhalb des Verkaufssystems, und
15 insbesondere zum Kunden (z.B. eine seitliche Beleuchtung) von Bedeutung. Sowohl die Beleuchtungsstärke als auch die Position sollen vom Kunden und/oder dem Verkaufspersonal steuerbar sein, damit die günstigste Beleuchtung in verschiedenen Situationen möglich ist. Dabei kann auch die
20 Videokamera so ausgestaltet sein, daß sie mit einer automatischen Einstellung versehen ist, die, abhängig von der jeweiligen Situation, die Beleuchtungsstärke und/oder die Position des Beleuchtungskörpers automatisch einstellt, um die günstigsten Werte für z.B. die Helligkeit, den Kontrast,
25 die Farbschattierung, Farbnuance, Schärfe usw. zu erhalten.

Für eine optimale Bildwiedergabe, aber auch für eine optimale Wirkung der anzuprobierenden Verkaufsobjekte, ist die Distanz des Kunden zur Videokamera von großer Bedeutung.

30 Zweckmäßigerweise enthält das erfindungsgemäße Verkaufssystem auch eine Distanzvorgabeeinrichtung zum Einstellen der günstigsten Distanz des Kundens zur Videokamera; diese Distanzvorgabeeinrichtung, mit der insbesondere ein Mindestwert der Distanz eingehalten werden soll, kann z.B.
35 aus einer geeignet angebrachten Markierung, einem Stab, z.B.

mit Entfernungsangaben, einer Schranke, usw., bestehen, die von der Videokamera aber zweckmäßigerweise nicht aufgenommen werden.

- 5 Vorzugsweise ist auch eine Bedienungseinrichtung zum Steuern und/oder Bedienen aller Systemelemente, die vom Kunden und/oder dem Verkaufspersonal gesteuert und/oder bedient werden sollen, vorgesehen, die zweckmäßigerweise so ausgebildet und angebracht ist, daß der Kunde die
- 10 Bedienungseinrichtung in seiner natürlichen Körperhaltung betätigen kann. Die Bedienungseinrichtung ist deshalb insbesondere als bewegbare drahtlose oder drahtgebundene Fernsteuerung ausgebildet.
- 15 Die Einstellung der Brennweite der Videokamera kann, insbesondere abhängig von der Natur der Verkaufsobjekte, automatisch oder durch Hand eingestellt werden. Zur Anprobe von Modellkleidern, die meist mit Bewegungsabläufen verbunden ist, und Bildsequenzen erfordert, ist eine automatische
- 20 Focussierung zweckmäßig, während z.B. für die Anprobe von Brillen oder Schmuck eine fixierte Brennweite verwendet werden kann.

- Die Art und Weise der Anordnung der Verkaufssystemelemente
- 25 hängt auch von den für die Anprobe vorhandenen Umgebungsbedingungen ab. So kann es z.B., wenn ein Verkauf in einer offenen oder nicht einzeln abgeschlossenen Umgebung stattfindet, wie z.B. auf Messen, Jahrmärkten usw., zweckmäßig sein, die Systemelemente, also insbesondere
- 30 Spiegel, Videokamera, Speichereinrichtung, Bildwiedergabeeinrichtung, Beleuchtungseinrichtung usw., innerhalb einer transportablen Einheit, z.B. einer stoßunempfindlichen Kabine, anzubringen, während ein abgeschlossener Verkaufsraum, z.B. eine Modeboutique,
- 35 zweckmäßigerweise mit Systemkomponenten arbeitet, die

entsprechend der jeweiligen Gegebenheiten und dem jeweiligen Zweck angeordnet werden. Die Anordnung und insbesondere der Abstand zwischen den einzelnen Verkaufssystemelementen ist auch stark von der Art der Verkaufsobjekte abhängig; wenn
5 z.B. eine genaue Betrachtung erforderlich ist, wie z.B. bei einem Optiker, wird eine andere Anordnung/Distanz und Beleuchtungsart verwendet werden, als z.B. zur Anprobe von Kleidungsstücken. Für eine genauere Betrachtung, wie z.B. bei einem Optiker, kann es deshalb z.B. auch zweckmäßig sein, den
10 als Berührungsschirm ausgebildeten Monitor, oder den Monitor mit Bedienungstasten, geneigt anzubringen, um ihn der Höhe des Kunden, z.B. in sitzender Position, anzupassen.

In einer transportablen Einheit können die einzelnen
15 Verkaufssystemelemente z.B. auf einer Plattform entsprechender Größe, die z.B. mit aufklappbaren Wänden versehen sein kann, so montiert sein, daß innerhalb bestimmter Grenzbereiche noch eine Veränderung der gegenseitigen Stellung zueinander möglich ist.

20 Eine weitere Verwendungsmöglichkeit der Erfindung besteht darin, daß das System dann, wenn es an sich abgeschaltet ist und z.B. nach Ladenschluß „inaktiv“ in der Ecke steht, gleichzeitig als Überwachungskamera, also im Rahmen eines
25 Sicherheitssystems verwendet werden kann. Selbstverständlich ist es auch möglich, das System bei geöffnetem Geschäft in dieser Art und Weise zu verwenden, um beispielsweise Ladendiebstahl zu verhindern bzw. zu dokumentieren.

30 Gegenstand der Erfindung ist deshalb auch die Verwendung eines erfindungsgemäßen Verkaufssystems zur Überwachung von Räumen, Raumabschnitten oder dergleichen Gebäudeteilen.

Das erfindungsgemäße Verkaufssystem wird nun unter Bezugnahme auf die Zeichnung beispielhaft erläutert, ohne den Rahmen der Erfindung darauf zu beschränken.

5 Hierbei zeigen:

Figur 1 eine schematische Darstellung eines erfindungsgemäß verwendeten Spiegels mit dahinter befindlicher Videokamera; Figur 2 eine schematische Darstellung der Anordnung einzelner Elemente des Verkaufssystems.

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In Figur 1 ist eine Videokamera (A) mit einem teilweise semitransparenten Spiegel (S) verbunden. Der Spiegel ist an einer drehbaren und in einer Führung (T) höhenverstellbaren Achse (B) befestigt, wodurch eine Höhen- und/oder
15 Neigungsverstellung ermöglicht wird, und der Spiegel z.B. leicht der Länge und Größe des Kunden angepaßt werden kann (z.B. sitzend oder stehend). Die Kamera (A) ist um die gleiche Achse (B) drehbar beweglich, wodurch sichergestellt wird, daß sich die Kamera (Objektivachse) in einem Winkel von
20 90 ° zur Spiegelebene befindet. Der Spiegel besteht aus den drei Bereichen (C), (D) und (E), die einen verschiedenen Reflektionsgrad und eine verschiedene Transparenz besitzen.

Die Bereiche (C), (D) und (E) sind so angeordnet, daß der
25 Bereich (C) im Zentrum/Augenhöhe, und damit vorzugsweise im Bereich der Augenkontaktzone liegt, und (D) und (E) in den äußeren Bereichen einer optimalen Betrachtungszone. Durch eine verschiedene Einfärbung/Tönung der Bereiche (C), (D) und (E), oder eine sichtbare Begrenzung dieser Bereiche, wie in
30 der Figur 1 dargestellt, bekommt der Kunde den Eindruck eines qualitativ hochwertigen Spiegels, der insbesondere zur Anprobe der Verkaufsobjekte ausgestaltet wurde, wobei dem Kunden auch gleichzeitig ein Hinweis auf den besten Aufnahmebereich, der sich im Bereich (D), und insbesondere in
35 und in der Nähe des Bereiches (C) befindet, gegeben wird.

(C) ist der Bereich des teilweise semitransparenten Spiegels, der groß genug ist, um es der Kamera zu ermöglichen, das Bild aufzunehmen. Im Hinblick auf die Spiegelwirkung muß die
5 Qualität des semitransparenten Bereichs (C) des Spiegels nicht die von üblichen Silberspiegeln aufweisen;

(D) ist ein Silberspiegel hoher Qualität, wie er insbesondere beim Modellstehen verwendet wird;

10 (E) ist ein Silberspiegel, der mit Grau- oder Farbtönen schwach eingefärbt sein kann.

In der Anordnung der Figur 2 befindet sich der Kunde in einer
15 optimalen Position, was durch eine Kombination der verschiedenen Bereiche des Spiegels (C), (D) und (E) nach Figur 1 und dem Abstand zwischen dem Kunden und dem Spiegel bewirkt wird. Die Mindestdistanz (G) wird durch einen Stab oder einen Ablagetisch (F), der sich vor dem
20 Berührungsschirm/Monitor befindet, und dem Kunden durch die Stablänge bzw. die Tischtiefe den Minimalabstand (G) anzeigt, gesteuert. Der Stab bzw. Tisch (F) kann am Monitor befestigt sein, aber auch freistehend sein.

25 Der Bedienknopf (I) befindet sich in einer Position, die vom Kunden mit entspannter Armlänge (J) erreicht werden kann; durch Drücken des Knopfes (I) wird die Videokamera (A), die sich hinter dem Spiegel (S) befindet, in Betrieb genommen. Die in Figur 2 dargestellte beispielhafte Anordnung eignet
30 sich insbesondere für eine genaue Betrachtung, z.B. zur Anprobe von Schmuck oder Brillen, bei der sich der Kunde vorzugsweise in sitzender Position befindet; dazu ist auch der Schirm des Monitors (H) neig- und schwenkbar ausgestaltet.

In der Ausführungsform der Figur 2 sind eine zusätzliche Kamera A1 und ein zusätzlicher Spiegel L vorgesehen. Der Spiegel L befindet sich hinter dem teilweise semitransparenten Spiegel S, z.B. im hinteren Teil einer transportablen Einheit, wie z.B. einer Kabine. Der Spiegel L ist länger als der Spiegel S, z.B. ein Spiegel voller Länge, wie er zur Anprobe von Kleidungsstücken, z.B. Mänteln, Hosen, Schuhen usw., üblich ist. Der Spiegel L muß nicht unbedingt einen semitransparenten Bereich aufweisen, ist aber vorzugsweise auch in drei Zonen, die den Zonen C, D und E des Spiegels S entsprechen, unterteilt, um dem Kunden das gleiche Betrachtungsgefühl wie vor dem Spiegel S zu vermitteln. Der Spiegel L ist an der Achse M befestigt und um diese schwenkbar. Zur Entfernung des Spiegels L und/oder für einen leichten Transport, z.B. in eine andere Verkaufsabteilung eines Warenhauses, sind die Elemente des Systems, z.B. die Spiegelanordnungen S und/oder M, vorzugsweise auf Rollen gelagert. Neben den Kameras A und A1 kann es in einigen Fällen auch zweckmäßig sein, zusätzliche Kameras, die sich z.B. auf einem Stativ befinden und/oder vom Verkaufspersonal gehalten und auch bedient werden, vorzusehen.

Bei einer anderen Ausführungsform wird eine Aufnahmeeinrichtung (Videokamera) mit extrem kleinem Durchmesser des Objektivs verwendet, wobei dieses Objektiv direkt in den Spiegel eingesetzt ist, so daß kein semitransparenter Bereich notwendig ist. Wenn der Durchmesser des Objektis gering genug ist, kann sich der Kunde dann z.B. störungsfrei zur Begutachtung eines Kleidungsstückes im Ganzen betrachten. Bei dieser Ausführungsform der Erfindung kann die Objektivachse bzw. der Blickwinkel des Kameraobjektivs auch so ausgerichtet werden, daß sie nicht direkt senkrecht zum Spiegel liegt. Die Kamera kann dann beispielsweise „etwas von oben“ auf den Kunden blicken, wobei der Neigungswinkel dann zweckmäßigerweise derart eingestellt

ist, daß das (vom Kunden wahrnehmbare) Objektiv gerade außerhalb seines Spiegelbildes liegt. Vorzugsweise wird die Kamera aber auch bei dieser Ausführungsform so eingestellt, daß eine optimale Augenkontaktzone gewährleistet ist.

P A T E N T A N S P R Ü C H E

- 5 1. Verkaufssystem mit einem Spiegel, in welchem ein Kunde
sich mit einem Verkaufsobjekt, z.B. einer Brille, einem
Kleidungsstück, Schmuck oder dergleichen, betrachten
kann,
g e k e n n z e i c h n e t d u r c h
10 eine Videokamera (A), welche relativ zum Spiegel (S) so
angeordnet ist, daß der Kunde, wenn er sich im Spiegel
(S) betrachtet, von der Videokamera (A) aufnehmbar ist,
eine Speichereinrichtung, die vom Kunden oder einer
15 dritten Person zum Speichern und Wiedergeben von
Bildern, die von der Videokamera (A) aufgenommen wurden,
betätigbar ist, und
eine Bildwiedergabeeinrichtung zum Wiedergeben der
aufgenommenen Bilder zur Betrachtung durch den Kunden.
- 20 2. Verkaufssystem nach Anspruch 1,
d a d u r c h g e k e n n z e i c h n e t,
daß der Spiegel (S) derart zusammen mit der Videokamera
(A) einstellbar ist, daß der Kunde unabhängig von seiner
Körpergröße und/oder von einem zu betrachtenden
25 Körperabschnitt den Spiegel (S) nach seinem Blickfeld
einstellen kann.
3. Verkaufssystem nach Anspruch 6,
d a d u r c h g e k e n n z e i c h n e t,
30 daß die Videokamera (A) hinter dem semitransparenten
Bereich (C) des Spiegels (S) und mit dem Spiegel (S)
zusammen beweglich derart montiert ist, daß die
Videokamera (A) durch den semitransparenten Bereich (C)
hindurch Bilder vom Kunden aufnehmen und der Kunde sich

auch im semitransparenten Bereich (C) des Spiegels (S) betrachten kann.

4. Verkaufssystem nach einem der vorhergehenden Ansprüche,
5 d a d u r c h g e k e n n z e i c h n e t,
 daß der Spiegel (S) einen für den Betrachter erkennbaren Bereich (C) aufweist, auf den der Betrachter seine Aufmerksamkeit lenkt, und der auf diese Weise zur Zone des Augenkontaktes des Betrachters wird.
- 10 5. Verkaufssystem nach Anspruch 3,
 d a d u r c h g e k e n n z e i c h n e t,
 daß der Bereich (C) ein zentraler Bereich des Spiegels (S) ist.
- 15 6. Verkaufssystem nach Anspruch 3,
 d a d u r c h g e k e n n z e i c h n e t,
 daß der Bereich (C) durch Einfärben, Tönen und/oder dergleichen Markierungseinrichtungen erkennbar ist.
- 20 7. Verkaufssystem nach Anspruch 4,
 d a d u r c h g e k e n n z e i c h n e t,
 daß der Bereich (C) semitransparent ist.
- 25 8. Verkaufssystem nach Anspruch 3,
 d a d u r c h g e k e n n z e i c h n e t,
 daß der semitransparente Bereich (C) von seiner Größe und/oder Geometrie her derart ausgebildet ist, daß seine Ränder im wesentlichen dem von der Videokamera (A)
30 aufnehmbaren Bildausschnitt entsprechen und diesen gerade nicht oder nur unwesentlich begrenzen.
9. Verkaufssystem nach einem der vorhergehenden Ansprüche,
 d a d u r c h g e k e n n z e i c h n e t,
35 daß der Spiegel (S) so groß ausgebildet ist, daß ein

Kunde im Spiegel (S) einen größeren Bereich als Spiegelbild betrachten kann, als er von der Videokamera (A) aufgenommen wird.

- 5 10. Verkaufssystem nach Anspruch 9,
d a d u r c h g e k e n n z e i c h n e t,
daß ein Spiegelbereich (D), welcher dem von der Kamera
aufnehmbaren Bildausschnitt entspricht, auf dem Spiegel
10 durch Einfärbungen, Tönungen oder dergleichen
Markierungseinrichtungen erkennbar gemacht ist.
11. Verkaufssystem nach einem der vorhergehenden Ansprüche,
d a d u r c h g e k e n n z e i c h n e t,
daß die Speichereinrichtung zur Wiedergabe einzelner
15 Standbilder und/oder von Bildsequenzen vorgegebener
Länge ausgebildet ist.
12. Verkaufssystem nach einem der vorhergehenden Ansprüche,
d a d u r c h g e k e n n z e i c h n e t,
20 daß es eine Druckeinrichtung enthält, die mit der
Speichereinrichtung zum Ausdrucken einzelner Standbilder
operativ verbunden ist.
13. Verkaufssystem nach einem der Ansprüche 7 bis 12,
25 d a d u r c h g e k e n n z e i c h n e t,
daß die Kamera (A) in einem die Kamera umschließenden
Raum hinter dem Spiegel montiert ist, der lichtdicht
abgeschlossen ist.
- 30 14. Verkaufssystem nach einem der vorhergehenden Ansprüche,
d a d u r c h g e k e n n z e i c h n e t,
daß es eine Beleuchtungseinrichtung zum Beleuchten der
von der Videokamera (A) aufzunehmenden Situation
enthält, die steuerbar und/oder einstellbar ausgebildet
35 und angebracht ist.

15. Verkaufssystem nach einem der vorhergehenden Ansprüche,
d a d u r c h g e k e n n z e i c h n e t,
daß sie eine Distanzvorgabeeinrichtung (F) zum
5 Einstellen der Distanz (G) des Kunden zur Videokamera
(A) enthält.
16. Verkaufssystem nach einem der vorhergehenden Ansprüche,
d a d u r c h g e k e n n z e i c h n e t,
10 daß es eine Bedienungseinrichtung (I) zum Steuern und
Bedienen von Systemelementen, insbesondere der
Videokamera (A) und/oder der Speichereinrichtung, durch
den Kunden oder eine dritte Person enthält, die derart
ausgebildet und angebracht ist, daß der Kunde die
15 Bedienungseinrichtung in einer natürlichen Körperhaltung
betätigen kann.
17. Verkaufssystem nach Anspruch 16,
d a d u r c h g e k e n n z e i c h n e t,
20 daß die Bedienungseinrichtung (I) als bewegbare draht-
lose oder drahtgebundene Fernsteuerung ausgebildet ist.
18. Verwendung eines Verkaufssystems nach einem der
vorhergehenden Ansprüche zur Überwachung von Räumen,
25 Raumabschnitten oder dergleichen Gebäudeteilen.
19. Spiegel, verwendbar in einem Verkaufssystem nach einem
der Ansprüche 1 bis 13,
d a d u r c h g e k e n n z e i c h n e t,
30 daß der Spiegel (S) einen für den Betrachter erkennbaren
Bereich (C) aufweist, auf den der Betrachter seine
Aufmerksamkeit lenkt, und der auf diese Weise zur Zone
des Augenkontaktes vom Betrachter wird.

20

20. Spiegel nach Anspruch 19,
d a d u r c h g e k e n n z e i c h n e t,
daß der Bereich (C) ein zentraler Bereich des Spiegels
(S) ist.

5

21. Spiegel nach Anspruch 19 oder 20,
d a d u r c h g e k e n n z e i c h n e t,
daß der Bereich (C) durch Einfärben, Tönen oder
dergleichen Markierungen erkennbar ist.

10

22. Spiegel nach einem der Ansprüche 19 bis 21, verwendbar
in einem Verkaufssystem nach einem der Ansprüche 6 bis
17,
d a d u r c h g e k e n n z e i c h n e t,
15 daß der Bereich (C) semitransparent ist.

1/2

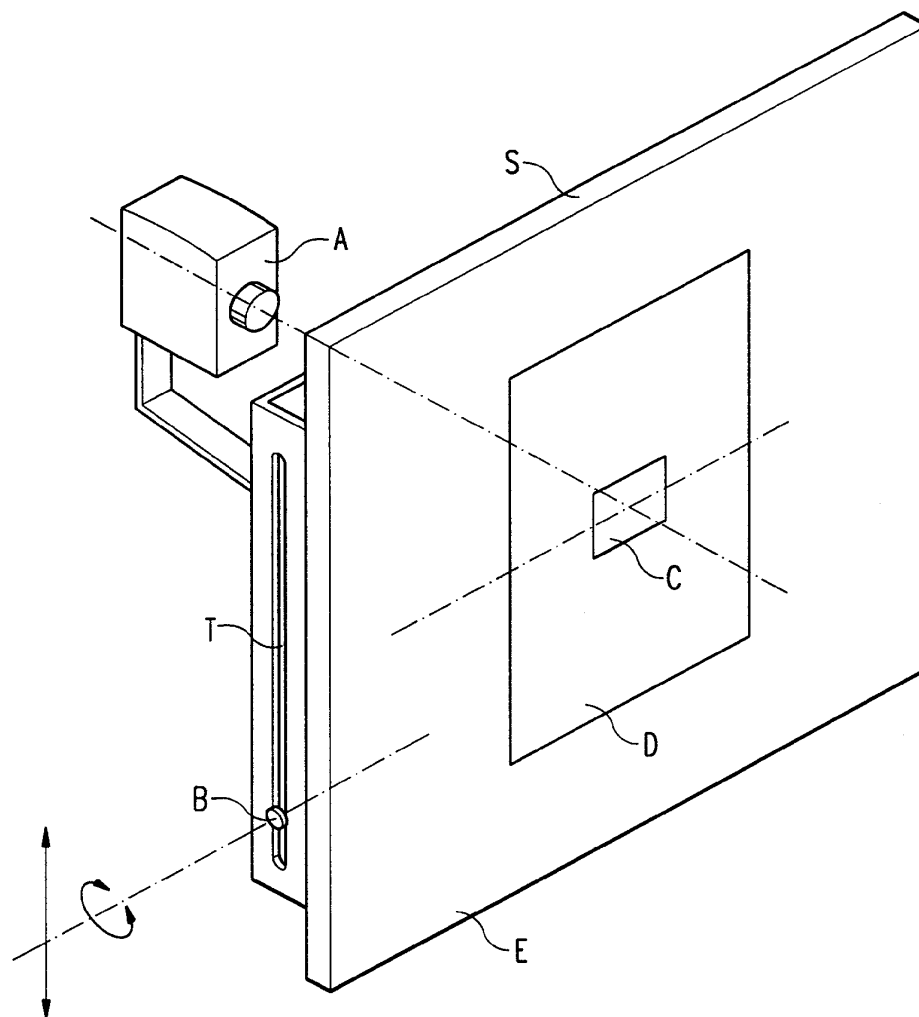


Fig. 1

ERSATZBLATT (REGEL 26)

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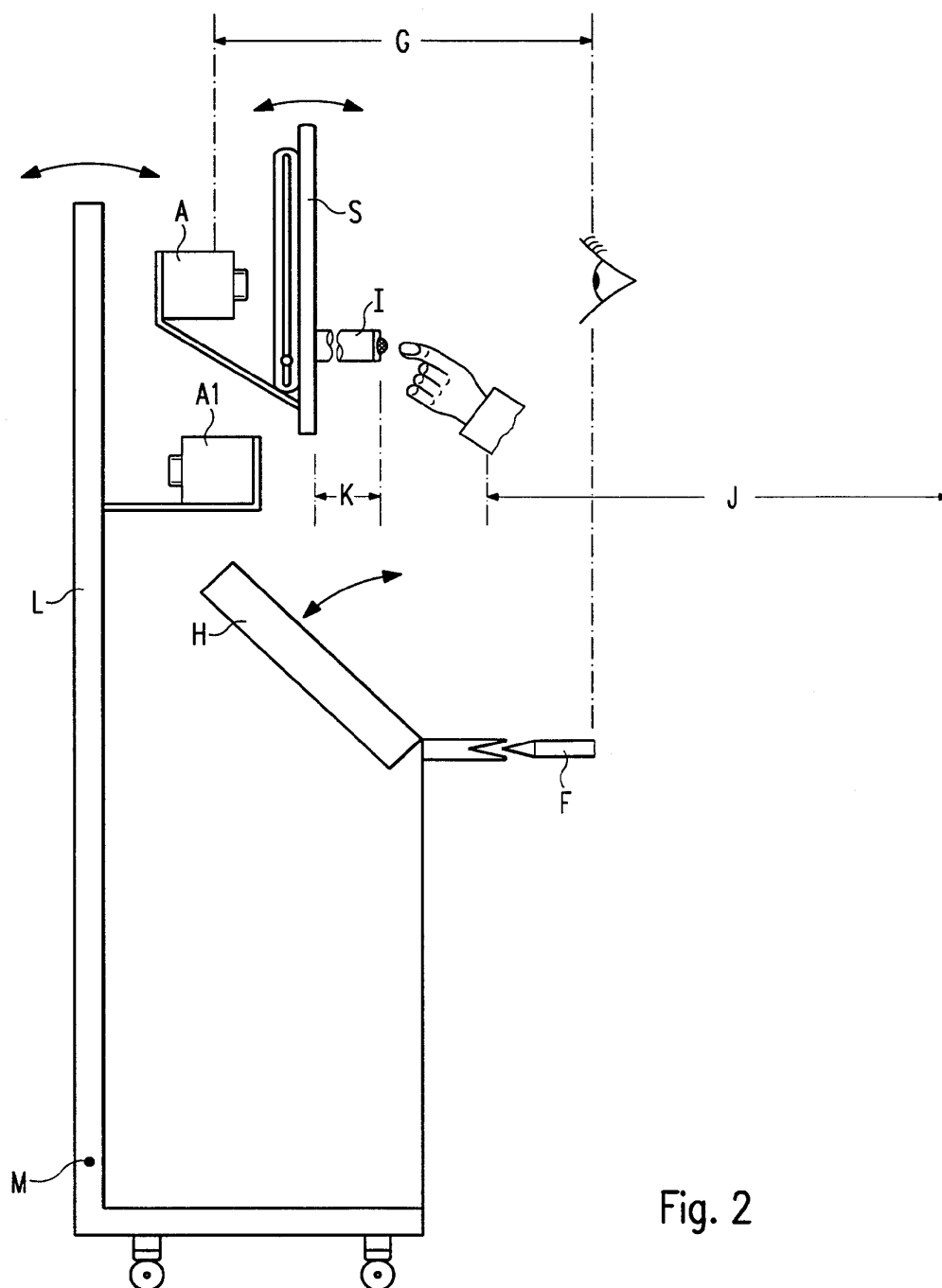


Fig. 2

ERSATZBLATT (REGEL 26)

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/07638

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A45D44/00 G09B19/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07F A45D G09B G03B A47G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 664 258 A (MARINIER STEPHANE) 10 January 1992 (1992-01-10) abstract; figures 1-7	19-22
A	US 4 864 410 A (VASSILADIS ARTHUR ET AL) 5 September 1989 (1989-09-05) column 2, line 49 - line 61 column 4, line 28 - line 41; figures 2,3 abstract	1-15, 18-22
A	US 4 434 467 A (SCOTT DALE) 28 February 1984 (1984-02-28) column 1, line 16 - line 21 column 3, line 58 - column 4, line 19; figure 1 abstract	1-15, 18-22
	-/-	

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

15 February 2000

Date of mailing of the international search report

22/02/2000

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Wauters, J

INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 99/07638

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 261 012 A (MALOOMIAN LAURENCE G) 7 April 1981 (1981-04-07) column 5, line 12 - line 21; figure 1 abstract	1-15, 18-22
A	US 5 621 492 A (BEVERIDGE IAIN M ET AL) 15 April 1997 (1997-04-15) column 3, line 10 - line 18; figures 2,3,5,6 abstract	1-15, 18-22
A	US 5 768 142 A (JACOBS HERBERT H) 16 June 1998 (1998-06-16) column 3, line 18 - line 29; figure 1 abstract	1-15, 18-22
A	US 5 184 160 A (MASSARSKY YEFIM) 2 February 1993 (1993-02-02) abstract; figures 2-4	1-3

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 99/07638

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2664258	A	10-01-1992	NONE	
US 4864410	A	05-09-1989	NONE	
US 4434467	A	28-02-1984	US 4258478 A	31-03-1981
US 4261012	A	07-04-1981	NONE	
US 5621492	A	15-04-1997	CA 2211394 A	01-08-1996
			EP 0806107 A	12-11-1997
			JP 10503343 T	24-03-1998
			WO 9623386 A	01-08-1996
US 5768142	A	16-06-1998	NONE	
US 5184160	A	02-02-1993	NONE	

INTERNATIONALER RECHERCHENBERICHT

Intern. Sales Abkürzungen

PCT/EP 99/07638

A. KLASSTIFIZIERUNG DES ANMELDUNGSGEGENSTANDES
 IPK 7 A45D44/00 G09B19/00

Nach der Internationalen Patentklassifikation (IPK) oder nach der nationalen Klassifikation und der IPK

B. RECHERCHIERTE GEBIETE

Recherchierte Mindestprüfstoff (Klassifikationssystem und Klassifikationsymbole)

IPK 7 G07F A45D G09B G03B A47G

Recherchierte aber nicht zum Mindestprüfstoff gehörende Veröffentlichungen, soweit diese unter die recherchierten Gebiete fallen

Während der Internationalen Recherche konsultierte elektronische Datenbank (Name der Datenbank und evtl. verwendete Suchbegriffe)

C. ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
X	FR 2 664 258 A (MARINIER STEPHANE) 10. Januar 1992 (1992-01-10) Zusammenfassung; Abbildungen 1-7	19-22
A	US 4 864 410 A (VASSILADIS ARTHUR ET AL) 5. September 1989 (1989-09-05) Spalte 2, Zeile 49 - Zeile 61 Spalte 4, Zeile 28 - Zeile 41; Abbildungen 2,3 Zusammenfassung	1-15, 18-22
A	US 4 434 467 A (SCOTT DALE) 28. Februar 1984 (1984-02-28) Spalte 1, Zeile 16 - Zeile 21 Spalte 3, Zeile 58 - Spalte 4, Zeile 19; Abbildung 1 Zusammenfassung	1-15, 18-22
	-/-	

☒ Weitere Veröffentlichungen sind der Fortsetzung von Feld C zu entnehmen

☒ Siehe Anhang Patentfamilie

* Besondere Kategorien von angegebenen Veröffentlichungen :

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Datum des Abschlusses der Internationalen Recherche

15. Februar 2000

Abendedatum des Internationalen Recherchenberichts

22/02/2000

Name und Postanschrift der Internationalen Recherchenbehörde
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Bevollmächtigter Bediensteter

Wauters, J

INTERNATIONALER RECHERCHENBERICHT

Internat. .nales Aktenzeichen

PCT/EP 99/07638

C.(Fortsetzung) ALS WESENTLICH ANGESEHENE UNTERLAGEN

Kategorie*	Bezeichnung der Veröffentlichung, soweit erforderlich unter Angabe der in Betracht kommenden Teile	Betr. Anspruch Nr.
A	US 4 261 012 A (MALOOMIAN LAURENCE G) 7. April 1981 (1981-04-07) Spalte 5, Zeile 12 - Zeile 21; Abbildung 1 Zusammenfassung	1-15, 18-22
A	US 5 621 492 A (BEVERIDGE IAIN M ET AL) 15. April 1997 (1997-04-15) Spalte 3, Zeile 10 - Zeile 18; Abbildungen 2,3,5,6 Zusammenfassung	1-15, 18-22
A	US 5 768 142 A (JACOBS HERBERT H) 16. Juni 1998 (1998-06-16) Spalte 3, Zeile 18 - Zeile 29; Abbildung 1 Zusammenfassung	1-15, 18-22
A	US 5 184 160 A (MASSARSKY YEFIM) 2. Februar 1993 (1993-02-02) Zusammenfassung; Abbildungen 2-4	1-3

INTERNATIONALER RECHERCHENBERICHT

Angaben zu Veröffentlichungen, die zur selben Patentfamilie gehören

Internationales Aktenzeichen

PCT/EP 99/07638

Im Recherchenbericht angeführtes Patentdokument	Datum der Veröffentlichung	Mitglied(er) der Patentfamilie	Datum der Veröffentlichung
FR 2664258 A	10-01-1992	KEINE	
US 4864410 A	05-09-1989	KEINE	
US 4434467 A	28-02-1984	US 4258478 A	31-03-1981
US 4261012 A	07-04-1981	KEINE	
US 5621492 A	15-04-1997	CA 2211394 A	01-08-1996
		EP 0806107 A	12-11-1997
		JP 10503343 T	24-03-1998
		WO 9623386 A	01-08-1996
US 5768142 A	16-06-1998	KEINE	
US 5184160 A	02-02-1993	KEINE	



①⑨ **BUNDESREPUBLIK
DEUTSCHLAND**



**DEUTSCHES
PATENT- UND
MARKENAMT**

⑫ **Offenlegungsschrift**
⑩ **DE 199 43 355 A 1**

⑤① Int. Cl. 7:
G 09 F 9/00

②① Aktenzeichen: 199 43 355.0
②② Anmeldetag: 10. 9. 1999
④③ Offenlegungstag: 15. 3. 2001

DE 199 43 355 A 1

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⑦④ Vertreter:
Schwabe, Sandmair, Marx, 81677 München

⑦② Erfinder:
gleich Anmelder

⑤⑥ Für die Beurteilung der Patentfähigkeit in Betracht
zu ziehende Druckschriften:
DE 94 01 801 U1
GB 21 41 280 A
US 56 57 563
US 47 47 223
WO 95 23 401 A1

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

⑤④ Reflektierendes Material mit Displayfunktion, Vorrichtung, die ein solches Material umfaßt

⑤⑦ Die Erfindung betrifft ein Material, insbesondere Verbundmaterial, mit Doppelfunktion, das zugleich als Spiegel und als Informationsanzeigevorrichtung verwendet werden kann.
Das reflektierende Material mit Displayfunktion umfaßt eine reflektierende Schicht und eine auf einer Rückseite der reflektierenden Schicht angeordnete Informationsanzeigeschicht, um mittels aktiver oder passiver Ausleuchtung Information darzubieten, bei welchem Material die reflektierende Schicht zumindest abschnittsweise ein partielles Reflexionsvermögen aufweist, das so gewählt ist, daß die reflektierende Schicht Licht, das von der Vorderseite auf die reflektierende Schicht auftrifft, überwiegend reflektiert, um als Spiegel zu wirken, daß jedoch bei Ausleuchtung der Informationsanzeigeschicht Information von der Vorderseite der reflektierenden Schicht her sichtbar ist.

DE 199 43 355 A 1

Die vorliegende Erfindung betrifft ein reflektierendes Material mit Displayfunktion und bevorzugte Verwendungsformen eines solchen Materials, insbesondere in Vorrichtungen mit elektrischer Ausleuchtung.

Spiegel und Materialien mit reflektierender Oberfläche finden in der Technik und im Design vielfach Anwendung. In der Regel sind Spiegel bzw. Materialien mit reflektierender Oberfläche nur für den Zweck ausgelegt, einfallendes Licht geeignet zu reflektieren. Für moderne Bürogebäude sind auch verspiegelte Oberflächen bekannt, die zwar im sichtbaren Spektralbereich überwiegend reflektierend sind, die jedoch im infraroten Spektralbereich weitgehend intransparent sind. Übliche Materialien mit reflektierender Oberfläche sind somit in ihrer Funktionalität erheblich eingeschränkt.

In der Technik sind auch viele Arten von Informationsanzeigevorrichtungen bekannt, beispielsweise Bildschirme, LED-Displays, LCD-Displays etc. Die dem Betrachter sichtbare Oberfläche solcher Informationsanzeigevorrichtungen genügt jedoch häufig nicht den Anforderungen des modernen Designs und können insbesondere nicht als Spiegel eingesetzt werden.

Aufgabe der vorliegenden Erfindung ist es, ein Material, insbesondere Verbundmaterial, zu schaffen, das zugleich als Spiegel und als Informationsanzeige verwendet werden kann. Eine weitere Aufgabe der vorliegenden Erfindung ist es, bevorzugte Anwendungen des erfindungsgemäßen Materials zu schaffen.

Diese Aufgabe wird gelöst durch ein Material mit den Merkmalen nach Anspruch 1 sowie durch eine Vorrichtung nach einem der Ansprüche 23 bis 26, 28, 29 und 31. Vorteilhafte Weiterbildungen sind Gegenstand der rückbezogenen Unteransprüche.

Gemäß der Erfindung wird ein Material, insbesondere ein Verbundmaterial, geschaffen, das eine reflektierende Schicht und eine Informationsanzeigeschicht umfaßt. Die reflektierende Schicht dient als Spiegel, um insbesondere im sichtbaren Spektralbereich Licht, das von einer Vorderseite bzw. Betrachtungsseite aus auf das Material einfällt, zurück zu reflektieren. Die Informationsanzeigeschicht ist gemäß der Erfindung auf der Rückseite der reflektierenden Schicht angeordnet, d. h. bei bestimmungsgemäßer Verwendung des Materials auf der der Betrachtungsseite des Materials abgewandten Seite des Materials.

Die Informationsanzeigeschicht bietet mittels aktiver oder passiver Ausleuchtung Information in Form eines Lichtmusters mit Helligkeits- und/oder Farbunterschieden dar, die insbesondere im sichtbaren Spektralbereich dargeboten werden.

Die reflektierende Schicht des erfindungsgemäßen Materials weist ein partielles Reflexionsvermögen auf, d. h. Licht, das auf die reflektierende Schicht auftrifft, wird von dieser nur zum Teil reflektiert, der übrige Teil des Lichts wird transmittiert. Somit kann das Lichtmuster, das von der Informationsanzeigeschicht dargeboten wird, die reflektierende Schicht teilweise durchdringen, um auf der Oberfläche der reflektierenden Schicht als Information wahrgenommen werden zu können.

Gemäß der Erfindung wird deshalb ein Material mit doppelter Funktion geschaffen. Das Material kann einerseits als Spiegel verwendet werden und andererseits als Informationsanzeige. Gemäß der Erfindung können beide Funktionen auf engstem Raum und mit ein- und demselben Material realisiert werden, so daß Platz und Herstellungs- und Betriebskosten eingespart werden können.

Das erfindungsgemäße Material kann vielfältig dort ein-

gesetzt werden, wo aus funktionellen Gründen eine Informationsanzeige gewünscht ist, wo aber gleichzeitig, beispielsweise aus ästhetischen Gründen, eine spiegelnde Oberfläche gewünscht ist.

Diese Doppelfunktion kann vielfältig ausgenutzt werden. Viele in der Technik eingesetzten Informationsanzeigen wirken insbesondere im ausgeschalteten Zustand unästhetisch. Dies gilt beispielsweise für LED-Anzeigen, auf denen man selbst im ausgeschalteten Zustand die Ziffernfelder ohne weiteres erkennen kann. Gemäß der Erfindung ist die Oberfläche solcher Informationsanzeigevorrichtungen verspiegelt, was den ästhetischen Gesamteindruck deutlich verbessert. Gemäß der Erfindung entfällt somit der störende ästhetische Gesamteindruck von Informationsanzeigen vollständig.

Gemäß der vorliegenden Erfindung kann auf der verspiegelten Oberfläche des Materials Information völlig unerwartet für einen Betrachter einblendet werden. Dies gilt umso mehr, als es ungewöhnlich ist, daß auf einer reflektierenden Oberfläche Information dargestellt wird. Diese überraschende Wirkung kann dazu genutzt werden, um die Aufmerksamkeit des Betrachters umso mehr auf die dargestellte Information zu lenken. Das erfindungsgemäße Material eignet sich deshalb insbesondere zu Werbezwecken oder Warnzwecken.

Unter dem Begriff passive Ausleuchtung wird nachfolgend insbesondere die Ausleuchtung der Informationsanzeigeschicht mittels einer auf der Rückseite der Informationsanzeigeschicht befindlichen Lichtquelle verstanden, die zweckmäßig zu jedem beliebigen Zeitpunkt zuschaltbar ist und vorzugsweise Licht mit variabler Intensität bereitstellen kann. Bei dieser Ausführungsform bietet die Informationsanzeigeschicht zur Darstellung von Information Abschnitte unterschiedlicher Transmission und/oder unterschiedlichem spektralem Absorptionsvermögen dar, die Licht, das von der Lichtquelle auf die Informationsanzeigeschicht auftrifft und diese durchdringt, in der Intensität und/oder Farbe unterschiedlich modulieren.

Unter dem Begriff aktive Ausleuchtung wird nachfolgend insbesondere verstanden, daß zumindest einzelne Abschnitte der Informationsanzeigeschicht aufgrund eines elektrischen Mechanismus selbsttätig Licht emittieren können, wie dies beispielsweise für LED-Arrays bekannt ist.

Weitere Einzelheiten zur aktiven oder passiven Ausleuchtung der Informationsanzeigeschicht werden nachfolgend unter Bezugnahme auf bevorzugte Ausführungsformen noch ausführlicher beschrieben werden.

Damit Licht von der Rückseite des Materials, d. h. von der der Betrachtungs- bzw. Vorderseite abgewandten Seite des Materials, zur Betrachtungsseite gelangen kann, weist die reflektierende Schicht gemäß der vorliegenden Erfindung ein partielles Reflexionsvermögen auf, d. h. ein Reflexionsvermögen von weniger als 100 Prozent. Die reflektierende Schicht braucht jedoch nicht auf der gesamten Oberfläche ein solches partielles Reflexionsvermögen aufweisen. Ein partielles Reflexionsvermögen ist nur an solchen Abschnitten erforderlich, an denen Information tatsächlich dargestellt werden soll.

Infolge der aktiven oder passiven Ausleuchtung der Informationsanzeigeschicht fällt Licht von der Seite der Informationsanzeigeschicht her auf die reflektierende Schicht auf, durchdringt diese teilweise und kann dann von der Betrachtungsseite des Materials aus bzw. auf der reflektierenden Schicht wahrgenommen werden.

Als Information kann gemäß der Erfindung jegliche Beweg- und/oder Standbildinformation dargestellt werden. Beispiele für Bewegtbildinformation sind Videobildsequenzen, Fernsehbildinformation, technische Anzeigen mit zeit-

lich variablem Inhalt, beispielsweise Zeichen- und/oder Ziffernanzeigen oder Datums- und/oder Zeitinformation, jeweils in schwarzweiß und/oder Farbe. Beispiele für Standbildinformation sind statische Darstellungen von Motiven in schwarzweiß und/oder Farbe, technische Informationen, wie beispielsweise Zeichen- und/oder Ziffernanzeigen, aber auch Texturen oder Strukturierungen von Materialien, die hinter der reflektierenden Schicht angeordnet sind.

Das Reflexionsvermögen der reflektierenden Schicht wird zumindest in dem Spektralbereich, in dem die Information mittels Licht einer vorgegebenen Wellenlänge bzw. Wellenlängenverteilung dargestellt werden soll, so gewählt, daß Licht, das von der Vorder- bzw. Betrachtungsseite des Materials aus auf die reflektierende Schicht auftrifft, ausreichend reflektiert wird, so daß die reflektierende Schicht als Spiegel mit einem zufriedenstellenden Reflexionsvermögen funktioniert. Andererseits ist das Reflexionsvermögen der reflektierenden Schicht auch so gewählt, daß ausreichend viel Licht, das die darzustellende Information verkörpert, die reflektierende Schicht von der Materialrückseite aus durchdringen kann und auf der Vorder- bzw. Betrachtungsseite des Materials deutlich als Information wahrgenommen werden kann. Das Reflexionsvermögen der reflektierenden Schicht unterliegt insofern einem gewissen Kompromiß, was von verschiedenen Faktoren abhängt, beispielsweise davon, wie lichtstark die Ausleuchtung der Informationsanzeigeschicht ist, wie hell der Vordergrund des Materials beim bestimmungsgemäßen Gebrauch ist und wie lichtstark die Information auf der reflektierenden Schicht eingeblendet werden soll.

Vorzugsweise liegt das Reflexionsvermögen der reflektierenden Schicht zumindest in dem Spektralbereich, in dem die Information mittels Licht einer vorgegebenen Wellenlänge bzw. Wellenlängenverteilung dargestellt werden soll, im Bereich von 75 bis 95 Prozent, insbesondere im Bereich von 85 bis 95 Prozent.

Bevorzugt ist das Reflexionsvermögen der reflektierenden Schicht im gesamten sichtbaren Spektralbereich im wesentlichen konstant. Ein solches Reflexionsvermögen kann durch metallisches Bedampfen einer Oberfläche oder durch Beschichten mit einer dielektrischen Vielfachbeschichtung, insbesondere mit einer Anzahl von dielektrischen Schichten mit einer Dicke von jeweils etwa einem Viertel der Wellenlänge von Licht im relevanten Spektralbereich, erreicht werden.

Das im sichtbaren Spektralbereich gewählte Reflexionsvermögen kann sich auch bis in den infraroten Spektralbereich fortsetzen. Es kann jedoch auch bevorzugt sein, daß die reflektierende Schicht im infraroten Spektralbereich sehr viel durchlässiger als im sichtbaren Spektralbereich ist, um einer übermäßigen Erwärmung der Informationsanzeigeschicht bei der Ausleuchtung entgegenzuwirken.

Damit das Reflexionsvermögen der reflektierenden Schicht nicht durch Hintergrundreflexionen hinter der reflektierenden Schicht beeinträchtigt wird, wird es bevorzugt, daß zumindest die der reflektierenden Schicht zugewandte Oberfläche der Informationsanzeigeschicht mit einer Antireflexionsbeschichtung, wie sie beispielsweise von Brillen her bekannt ist, insbesondere mit dielektrischen Mehrfachschichten, versehen ist. Bevorzugt wird ferner, daß die Informationsanzeigeschicht dann, wenn diese nicht ausgeleuchtet wird, einen dunklen Hintergrund darbietet, so daß möglichst kein störendes Licht von der Rückseite der reflektierenden Schicht her zu deren Vorderseite gelangen kann. Zu diesem Zweck kann die Rückseite der Informationsanzeigeschicht auch mit einer Licht diffus streuenden Oberfläche versehen sein.

Bevorzugt ist die reflektierende Schicht unmittelbar mit

der Informationsanzeigeschicht zu einem Verbundmaterial mit Sandwich-Struktur verbunden. Es kann jedoch auch ein Spalt zwischen den beiden Schichten vorgesehen sein. Bei letztgenannter Ausführungsform wird es bevorzugt, daß der Spalt stirnseitig lichtdicht abgeschlossen ist, so daß in den Spalt im wesentlichen kein Licht seitlich einfallen kann, das sonst durch die Abschnitte der reflektierende Schicht mit dem partiellen Reflexionsvermögen auf der Materialvorderseite sichtbar wäre.

Bei einer ersten Ausführungsform, insbesondere mit passiver Ausleuchtung der Informationsanzeigeschicht, ist die Informationsanzeigeschicht als transparentes bzw. semitransparentes Material ausgebildet, daß zur Darstellung von Information Abschnitte mit unterschiedlicher Transmission aufweist. Wird eine solche Schicht rückseitig mittels einer Lichtquelle ausgeleuchtet, so wird das die Informationsanzeigeschicht durchdringende Licht von den Abschnitten mit unterschiedlicher Transparenz intensitätsmoduliert, so daß dem Lichtstrom eine Information aufgeprägt wird. Die Transparenz des Materials kann für alle Wellenlängen im sichtbaren Spektralbereich gleichmäßig sein, sie kann jedoch auch spektral verschieden sein, so daß dem Lichtstrom neben Graustufeninformation zusätzlich auch ein Farbmuster als Information aufgeprägt werden kann.

Besonders bevorzugt umfaßt das transparente bzw. semitransparente Material der Informationsanzeigeschicht einen geeigneten Kunststoffilm, beispielsweise in der Art von Schwarzweiß- oder Farbnegativfilmen, insbesondere einen sogenannten Backlightfilm. Bei dem transparenten bzw. semitransparenten Material der Informationsanzeigeschicht kann es sich jedoch auch um eine Glas- oder Kunststoffschicht handeln, die entweder oberflächlich mit einem Graustufen- oder Farbmuster versehen ist, beispielsweise durch Anätzen und/oder Einfärben der Oberfläche, oder die im Material selbst Graustufen- oder Farbmuster aufweist, beispielsweise hervorgerufen durch Einlagerungen. Eine solche Glas- oder Kunststoffschicht weist vorzugsweise eine Licht diffus streuende Oberfläche auf, so daß Licht, das durch die reflektierende Schicht hindurchgelangt, nicht direkt zurückreflektiert wird. Schließlich kann die Informationsanzeigeschicht auch ein anderes transparentes bzw. semitransparentes Material umfassen, das einem Lichtstrom Intensitäts- oder Farbmuster aufprägen kann, beispielsweise ein vergleichsweise grobmaschiges Textil mit einer Gewebestrukturierung oder eine vergleichsweise dünne eingeschwärzte und/oder eingefärbte Pappebahn.

Bei einer weiteren Ausführungsform umfaßt die Informationsanzeigeschicht eine Matrix bzw. einen Array aus lichtemittierenden Polymeren. Von solchen Polymeren ist bekannt, daß diese ähnlich wie Halbleiter eine Bandlücke aufweisen, so daß bei Anlegen einer geeigneten Spannung von dem Kunststoff Licht emittiert wird. Im Stand der Technik sind auch bereits Arrays aus lichtemittierenden Polymeren bekannt, die einzeln ansteuerbare Felder in der Art einer LED-Matrix aufweisen, denen jeweils eine Steuerelektrode zugeordnet ist. Vorzugsweise weist die Rückseite einer solchen Matrix eine Licht diffus streuende Oberfläche auf.

Die vorgenannten Materialien für die Informationsanzeigeschicht können auch plastisch, beispielsweise durch Wärmebeaufschlagung, zu einer beliebigen dreidimensionalen Form geformt sein. Besonders bevorzugt wird eine plastische Verformung bei Lampenschirmen oder Lampensäulen, die mit einem erfindungsgemäßen Material beschichtet bzw. versehen sind.

Bei dieser Ausführungsform kann die reflektierende Schicht in Form einer metallischen oder dielektrischen Beschichtung unmittelbar auf die Informationsanzeigeschicht aufgebracht sein, beispielsweise unmittelbar auf einen

Kunststoffilm oder eine Matrix aus lichtemittierenden Polymeren. Auf diese Weise können die Herstellungskosten des Materials noch weiter gesenkt werden.

Die reflektierende Schicht kann auch auf einem separaten transparenten Material aufgebracht sein, das mit der Informationsanzeigeschicht zu einem flächigen Verbundmaterial verbunden ist, beispielsweise einem Laminat mit Sandwich-Struktur. Insbesondere kann die reflektierende Schicht unmittelbar auf der Oberfläche einer Kunststoffschicht ausgebildet ist, beispielsweise durch Bedampfen mit einer Metallschicht oder einer dielektrischen Vielfachschicht. Vorzugsweise ist die Kunststoffschicht mit der Informationsanzeigeschicht thermoverschweißt oder mittels Verkleben als Laminatmaterial ausgebildet.

Bei einer anderen bevorzugten Ausführungsform ist die Informationsanzeigeschicht so ausgelegt, daß zumindest ein Abschnitt von dieser aktiv ausleuchtbar ist. Beispiele für aktiv ausleuchtbare Informationsanzeigeschichten sind Bildschirme, insbesondere lichtstarke Plasmabildschirme, LCD-Displays, die für Durchlichtbetrieb mit Hintergrundausleuchtung ausgelegt sind, wie diese beispielsweise von der Ansteuerung von Overhead-Projektoren mittels Computer her bekannt sind, eine Schicht, die eine Matrix bzw. ein Array aus LEDs umfaßt, etc.

Bei dieser Ausführungsform kann die reflektierende Schicht, insbesondere eine metallische oder dielektrische Vielfachbeschichtung, unmittelbar auf der Oberfläche der Informationsanzeigeschicht ausgebildet sein. Weil solche Informationsanzeigen jedoch häufig als Fertigkomponenten zugekauft werden soll, wird es bevorzugt, daß die reflektierende Schicht auf der Oberfläche einer Glas- oder Kunststoffschicht oder einer anderen geeigneten transparenten Schicht ausgebildet ist. Diese Schicht ist dann beispielsweise durch Verkleben, Laminieren oder eine andere geeignete Verbindungstechnik mit der Informationsanzeigeschicht verbunden.

Für LEDs aber auch lichtemittierende Polymere ist es charakteristisch, daß die Lichtemission in einem vergleichsweise schmalbandigen Spektralbereich erfolgt, beispielsweise im roten Spektralbereich. Deshalb wird bei einer weiteren bevorzugten Ausführungsform das spektrale Reflexionsvermögen der reflektierenden Schicht gerade so gewählt, daß dieses in dem schmalbandigen Emissionswellenlängenbereich ein vergleichbar schmalbandiges Minimum aufweist, wohingegen das Reflexionsvermögen im übrigen Spektralbereich, wie auch bei den vorgenannten Ausführungsformen, einen vergleichsweise hohen und vorzugsweise annähernd konstanten Wert annimmt. Insbesondere kann im übrigen Spektralbereich das Reflexionsvermögen des Spiegels möglichst nahe an 100 Prozent gewählt werden. Auf diese Weise wird sichergestellt, daß noch mehr Licht von der Informationsanzeigeschicht die reflektierende Schicht durchdringen und von einem Betrachter wahrgenommen werden kann, daß jedoch in den übrigen Spektralbereichen das Material als hochwertiges Spiegelmaterial eingesetzt werden kann. Das hohe Transmissionsvermögen in einem relativ schmalbandigen Spektralbereich wird jedoch von Betrachtern nicht als störend empfunden. Dies führt vielmehr nur zu einem geringfügig herabgeminderten Reflexionsvermögen des Spiegels.

Ein solches Reflexionsvermögen läßt sich durch Vielfachbeschichten mit dielektrischen Lambda-Viertelschichten ohne weiteres erreichen. Bevorzugt liegt das minimale Reflexionsvermögen der reflektierenden Schicht im Bereich des schmalbandigen Minimums im Bereich von 50 bis 85 Prozent, insbesondere im Bereich von 50 bis 65 Prozent.

Bevorzugt ist bei sämtlichen vorgenannten Ausführungsformen zumindest die reflektierende Schicht von einer

Schutzschicht überzogen, die als mechanischer Schutz und/oder Oxidationsschutz für die üblicherweise empfindliche reflektierende Schicht dient. Solche Schutzschichten sind im Stand der Technik beispielsweise zum Schutz von Spiegeln oder Brillengläsern bekannt.

Nachfolgend wird die Erfindung in beispielhafter Weise und unter Bezugnahme auf die beigefügten Zeichnungen bevorzugter Ausführungsbeispiele erläutert. Dabei werden weitere Merkmale und Vorteile der Erfindung ersichtlich werden. Die Figuren stellen dar:

Fig. 1 eine schematische Querschnittsansicht eines erfindungsgemäßen Materials gemäß einer ersten Ausführungsform mit passiver Ausleuchtung der Informationsanzeigeschicht;

Fig. 2 eine schematische Querschnittsansicht eines erfindungsgemäßen Materials gemäß einer zweiten Ausführungsform mit aktiver Ausleuchtung der Informationsanzeigeschicht;

Fig. 3 eine schematische Querschnittsansicht einer Lampe mit einem erfindungsgemäßen Material gemäß der ersten Ausführungsform; und

Fig. 4 eine schematische Ansicht eines Spiegels, der ein erfindungsgemäßes Material gemäß der zweiten Ausführungsform aufweist, um wahlweise Information anzuzeigen oder als Spiegel zu dienen.

In den Figuren bezeichnen gleiche Bezugszeichen identische oder gleichwirkende Elemente bzw. Merkmale.

Fig. 1 zeigt eine schematische Querschnittsansicht eines erfindungsgemäßen Materials gemäß einer ersten Ausführungsform. Das Material umfaßt eine reflektierende Schicht **1** und eine Informationsanzeigeschicht **2**. Wie durch die unterschiedlich gepunkteten Abschnitte der Informationsanzeigeschicht **2** schematisch angedeutet ist, umfaßt diese eine Anzahl von Abschnitten unterschiedlicher Transparenz für Licht, insbesondere in dem Spektralbereich, in dem Information dargestellt werden soll. Dies ist üblicherweise der sichtbare Spektralbereich, kann jedoch beispielsweise auch der infrarote Spektralbereich sein. Auf der Rückseite der Informationsanzeigeschicht **2**, d. h. auf der der reflektierenden Schicht **1** abgewandten Seite, ist eine Lichtquelle **4** angeordnet, die wahlweise an- und abgeschaltet werden kann und vorzugsweise auch hinsichtlich der Intensität gesteuert werden kann. Es kann auch vorgesehen sein, daß einzelne Abschnitte der Informationsanzeigeschicht **2** mittels gesonderter, unabhängig ansteuerbarer Lichtquellen ausgeleuchtet werden können.

Licht, das von der Vorderseite bzw. bestimmungsgemäßen Betrachtungsseite, d. h. in **Fig. 1** vom linken Rand aus, auf die reflektierende Schicht **1** auftrifft, wird von dieser partiell reflektiert. Der reflektierte Anteil **R** hängt von dem Reflexionsvermögen der reflektierenden Schicht **1** ab und liegt bei einer besonders bevorzugten Ausführungsform im Bereich von 85 bis 95 Prozent, so daß der größte Teil des einfallenden Lichts wieder reflektiert wird. Somit kann die reflektierende Schicht als Spiegel für einen auf der Vorderseite des Materials befindlichen Betrachter dienen.

Licht, das von der Lichtquelle emittiert wird, gelangt durch die Informationsanzeigeschicht **2**. Dabei wird dem Lichtstrom aufgrund der Abschnitte mit unterschiedlicher Transparenz Information aufgeprägt. Die Transparenz kann im gesamten Emissionswellenlängenbereich der Lichtquelle **4** nahezu konstant sein. In diesem Fall wird dem Licht Information in Form von Graustufenwerten aufgeprägt. Die Transparenz kann jedoch auch über den Emissionswellenlängenbereich der Lichtquelle **4** variieren. In einem solchen Fall wird dem Licht Information auch in Form von Farbstufenwerten aufgeprägt.

Nach Durchqueren der Informationsanzeigeschicht **2**

trifft das Licht schließlich auf die Rückseite der reflektierenden Schicht **1** auf. Von dieser wird ein Teil T, abhängig vom gewählten Reflexionsvermögen der reflektierenden Schicht **1**, zur Vorder- bzw. Betrachtungsseite des Materials hindurchgelassen. Dort ist die dem Licht aufgeprägte Information schließlich auf der Oberfläche des Materials sichtbar.

Durch wahlweises An- und Abschalten und Variieren der Intensität der Lichtquelle kann die Information wahlweise zugeschaltet und in der Helligkeit variabel auf der Oberfläche der reflektierenden Schicht **1** angezeigt werden.

Als Materialien für die Informationsanzeigeschicht **2** kommen Glas- oder Kunststoffschichten in Frage, auf deren Oberfläche oder in deren Volumen Information in Form von grauen oder farbigen Bereichen aufgeprägt oder eingelagert ist. Es kommen auch jegliche andere transparente Materialien in Frage, die Abschnitte mit unterschiedlicher Transparenz aufweisen, beispielsweise vergleichsweise grobmächtige Textilien, wo die Struktur des Gewebes der darzustellenden Information entspricht. Bei diesen Materialien wird die Information überwiegend nur in Form von Standbildern, d. h. zeitlich nicht variablen Bildern bzw. Zeichen, dargeboten.

Als Material für die Informationsanzeigeschicht **2** kann jedoch auch ein Projektionsschirm mit Hintergrundausleuchtung oder ein LCD-Display mit Hintergrundausleuchtung verwendet werden.

Fig. 2 zeigt eine schematische Querschnittsansicht eines erfindungsgemäßen Materials gemäß einer zweiten Ausführungsform. Bei diesem Material wird die Informationsanzeigeschicht aktiv ausgeleuchtet. Zu diesem Zweck umfaßt die Informationsanzeigeschicht **5** eine Anzahl von Abschnitten, deren Helligkeit unabhängig voneinander binär und/oder in beliebigen Abstufungen variiert werden kann. Dies ist in **Fig. 2** schematisch durch die schraffierten und nicht schraffierten Felder **5a** bzw. **5b** angedeutet.

Beispiele für eine solche Informationsanzeigeschicht sind insbesondere LED-Arrays, Arrays aus lichtemittierenden Polymeren oder Bildschirme. Solche Anzeigen eignen sich sowohl für die Darstellung von Bewegtbildern als auch von Standbildern.

Die Ausleuchtung der Informationsanzeigeschicht **5** führt zu einem Lichtstrom, dem Information in Form von Helligkeits- und/oder Farbmustern aufgeprägt ist. Dieser Lichtstrom trifft auf die Rückseite der reflektierenden Schicht **1** auf und wird von dieser teilweise zur Vorder- bzw. Betrachtungsseite hindurchgelassen. Dort ist die Information in Form von Helligkeits- und/oder Farbmustern auf der Oberfläche der reflektierenden Schicht **1** sichtbar.

Fig. 3 zeigt schematisch eine Querschnittsansicht einer Lampe **6** mit einem erfindungsgemäßen Material gemäß der ersten Ausführungsform.

Die Lampe ist bei dem dargestellten Beispiel säulenartig ausgebildet und umfaßt im oberen Bereich einen Lampenschirm, der um die Lichtquelle **4** herum angeordnet ist. Der Lampenschirm umfaßt das erfindungsgemäße Material mit der reflektierenden Schicht **1** und der Informationsanzeigeschicht **2**, **5** oder besteht voll und ganz aus diesem. Die Lampe umfaßt außerdem einen Lampenfuß **9**, eine Standleuchte **8**, die vorzugsweise geschlossen ausgebildet ist, und ein oberes Ende **7**, das beim dem dargestellten Ausführungsbeispiel nach oben hin offen ist. Grundsätzlich kann die Lampe oder der Lampenschirm auch beliebig anders gestaltet sein.

Ist die Lichtquelle **4** ausgeschaltet, so wirkt der Lampenschirm als reflektierender Spiegel. Wird die Lichtquelle **4** eingeschaltet, so wird dem Licht beim Durchqueren der Informationsanzeigeschicht **2**, **5** Information in Form von abschnittsweise unterschiedlichen Helligkeits- und/oder Farbänderungen aufgeprägt. Das modulierte Licht durchquert

die reflektierende Schicht **1** mit dem partiellen Reflexionsvermögen und kann auf der Oberfläche des Lampenschirms als Information wahrgenommen werden.

Zur Anzeige von Standbildinformation kann das Material der Informationsanzeigeschicht **2** unterschiedlich geschwärzte und/oder gefärbte Abschnitte auf der Oberfläche oder im Materialvolumen aufweisen. Beispiele für Materialien des Lampenschirms sind dünne Pappenbahnen, Kunststofffilme, einfache Glas- oder Kunststoffformen, Maschenstrukturen, beispielsweise aus Textilien, etc. Insbesondere kann das Material des Lampenschirms auch mit einer semitransparenten Druckfarbe, beispielsweise im Siebdruckverfahren, oberflächlich eingefärbt sein.

Die reflektierende Schicht **1** kann unmittelbar auf das Material der Informationsanzeigeschicht **2** aufgebracht sein. Die reflektierende Schicht kann jedoch auch auf einem Überzug aus einem transparenten Material, beispielsweise Kunststoff oder Glas, aufgebracht sein. In letzterem Fall wird es bevorzugt, daß der Überzug mit dem Material der Informationsanzeigeschicht zu einem Verbundmaterial zusammengefügt ist. Als Verbindungsverfahren eignet sich insbesondere für Kunststoffmaterialien Thermo-Verschweißen.

Zur einfacheren Montage kann der Lampenschirm, nachdem er zunächst aus dem erfindungsgemäßen Material als rechteckförmige Bahn zurechtgeschnitten wurde, mit einem Verbindungstreifen, beispielsweise einem selbstklebenden Streifen oder mit einem Klettband, versehen und dann durch Verbinden des Verbindungstreifens mit einem anderen Ende der Bahn zu einer geeigneten dreidimensionalen Form zusammengefügt werden.

Der Lampenschirm kann auch mit Versteifungsringen etc. versehen sein, um die dreidimensionale Form zu wahren und um für eine geeignete mechanische Stabilität zu sorgen. Nach dem Zusammenfügen kann der Lampenschirm auch plastisch zu einer geeigneten dreidimensionalen Form weitergeformt werden, beispielsweise durch Wärmebeaufschlagung und Überziehen über eine geeignete Form.

Ein Aufbau von der in **Fig. 3** gezeigten Anordnung läßt sich vielfältig auch für andere Zwecke einsetzen. Beispielsweise als Reklame-Litfaßsäule mit geschlossenem oberem Ende. Um die Aufmerksamkeit der Betrachter zu steigern, können Teile der Litfaßsäule eine spiegelnde Oberfläche aufweisen, was für Litfaßsäulen ungewöhnlich ist, und kann auf anderen Teilen nach Bedarf Werbeinformation oder auch andere nützliche Hinweise, beispielsweise Textinformation, angezeigt werden.

Durch Ausschalten der Lichtquelle **4** können alle Werbeinformationen auf einmal ausgeblendet und wieder eingeblendet werden. Beim plötzlichen Einblenden werden Passanten unwillkürlich die Litfaßsäule genauer fixieren, um festzustellen, was sich da im Gesichtsfeld gerade geändert hat. Somit kann in einfacher Weise die gewünschte erhöhte Aufmerksamkeit des Publikums für Werbeinformation bewerkstelligt werden. Um diesen Effekt noch weiter zu steigern, kann jedem Informationsanzeigebereich eine eigene und selbsttätig schaltbare Lichtquelle zugeordnet sein.

In einzelnen oder sämtlichen Feldern der Litfaßsäule können auch Bewegtbilder dargestellt werden, wenn man hinter der reflektierenden Schicht **1** geeignete aktive Informationsanzeigevorrichtungen verwendet, wie diese vorstehend beschrieben wurden.

Die Steuerung der Lichtquelle und der Informationsanzeigeschicht **5** erfolgt mit Hilfe eines Computers oder einer geeigneten Steuereinheit.

Fig. 4 zeigt schließlich ein tafelförmiges Flächenelement **10**, das zumindest abschnittsweise ein Material gemäß der vorliegenden Erfindung umfaßt.

Das Flächenelement **10**, umfaßt einen Randbereich **11**, einen Zentralbereich **12** und einen kleineren Abschnitt **13**. Zur nachfolgenden Beschreibung sei der Übersichtlichkeit halber angenommen, daß der Randbereich **11** und der kleinere Abschnitt **13** ein erfindungsgemäßes Material umfaßt, während der Zentralbereich ausschließlich als Spiegel funktioniert. Die Erfindung ist jedoch nicht auf eine solche Anordnung beschränkt.

Sofern die Informationsanzeigeschicht des Materials in den Bereichen **11** und **13** nicht ausgeleuchtet wird, weisen auch diese Bereiche eine reflektierende Oberfläche auf. Somit wirkt das gesamte Flächenelement **10** als Spiegel.

Bei Ausleuchtung kann in den Bereichen **11** und **13** Information eingeblendet werden. Beispielsweise ließe sich im Randbereich **11** bei Bedarf ein ornamentaler Rahmen, beispielsweise ein barocker Zierbildrahmen, einblenden. Ein solches Ornament kann in eine auf der Rückseite befindliche Kunststoffschicht eingefärbt und/oder eingeschwärzt sein. Ein solches Ornament kann auch mittels einer aktiven Informationsanzeigevorrichtung dargestellt werden, beispielsweise mit einer LCD-Anzeige mit Hintergrundausleuchtung.

Mit einer aktiven Informationsanzeigevorrichtung lassen sich auch benutzerspezifisch unterschiedliche Informationen im Randbereich einblenden, beispielsweise ein Zierrahmen das eine mal und aktuelle Börsenkurse als Laufband das andere mal.

Das erfindungsgemäße Material kann auch an einer beliebigen anderen Stelle des Flächenelements **10** angeordnet sein, beispielsweise in einem vergleichsweise kleinen Zentralfeld **13**. Mittels einer auf der Rückseite angeordneten Informationsanzeigevorrichtung können beliebige Bildinformationen eingeblendet werden.

Eine bevorzugte Anwendung betrifft die Einblendung von Stockwerksangaben und/oder weiteren Bedienhinweisen im Spiegel eines Fahrstuhls. Eine weitere bevorzugte Anwendung betrifft die Anzeige von kurzen Hinweis- oder Warntexten in einem Spiegel, beispielsweise einem Hotelzimmerspiegel.

Eine weitere bevorzugte Anwendung betrifft die Einblendung von Text- oder Zahleninformationen auf die reflektierende Oberfläche von Zierelementen von Gegenständen, insbesondere Elektrogeräten. Beispielsweise kann eine Stereoanlage mit einem Bedienfeld versehen sein, das im nicht-aktiven Zustand der Stereoanlage eine verspiegelte Oberfläche aufweist. Oder der Rahmen eines Monitors kann mit dem erfindungsgemäßen Material bestückt sein.

Beim Anschalten des Elektrogeräts oder beim Feststellen von Erschütterungen durch einen herannahenden Benutzer schaltet sich eine hinter der verspiegelten Oberfläche des Materials befindliche Informationsanzeige an und stellt dem Benutzer nützliche Bedieninformation dar. Nach Ausschalten des Elektrogeräts weist das Material wiederum eine verspiegelte Oberfläche auf. Bei der Informationsanzeige kann es sich um LED-Displays, LCD-Displays mit Hintergrundausleuchtung oder beliebige Bildschirmtypen handeln.

Für diese Anwendung eignen sich insbesondere auch geeignet reflexionsbeschichtete Kunststoffolien, beispielsweise verchromte Folien aus lichtemittierenden Polymeren in Matrixanordnung.

Zur Informationsanzeige ist das erfindungsgemäße Material zweckmäßig mit einer Steuereinheit, beispielsweise mit einem Computer, verbunden, der die Informationsanzeige mittels der Informationsanzeigeschicht geeignet steuert.

Mit Hilfe des in **Fig. 4** dargestellten spiegelnden Flächenelements läßt sich noch eine weitere bevorzugte Anwendung realisieren. Es sei der Fall betrachtet, daß der gesamte zentrale Bereich **12** des Flächenelements **10** aus dem erfin-

dungsgemäßen Material ausgebildet ist, mit einer aktiven Informationsanzeigeschicht, und daß das Flächenelement als Spiegel in einem Bekleidungsgeschäft verwendet werden soll.

Die Körperstatur eines Betrachters werde erfaßt oder eine typische Körperstatur sei in einer Speichervorrichtung einer Steuereinheit abgespeichert. Außerdem seien in die Steuereinheit Parameter eingespeichert, die die Darstellung von Bekleidungsstücken mit Hilfe der Informationsanzeige steuern können.

Anstatt daß der Betrachter Bekleidungsstücke mühsam anprobiert, stellt sich der Betrachter einfach vor den Spiegel. Dabei wird sein Blickwinkel auf den Spiegel und seine aktuelle Beobachtungsposition erfaßt und in die Steuereinheit eingegeben. Außerdem wird in die Steuereinheit eingegeben, welches Bekleidungsstück und in welcher Farbe, Größe etc. der Betrachter elektronisch anzuprobieren wünscht. Auf Befehl wird mittels der Steuereinheit die hinter dem Spiegel befindliche Informationsanzeige aktiviert und in Abhängigkeit von vorstehend genannten Parametern geeignet angesteuert, um dem Betrachter auf dem Spiegel die Illusion elektronisch darzustellen, er habe das Bekleidungsstück tatsächlich anprobiert.

Bei dieser Anwendung erblickt der Betrachter auf dem Spiegel Körperpartien, die nicht von dem anzuprobierenden Bekleidungsstück verdeckt werden, in Reflexion, während Körperpartien, die von dem anzuprobierenden Bekleidungsstück verdeckt werden, mit Hilfe der Informationsanzeigeschicht für den Benutzer an geeigneten Abschnitten des Spiegels elektronisch und in Transmission durch die reflektierende Schicht hindurch eingeblendet werden.

Weitere mögliche Anwendungsformen des erfindungsgemäßen Materials umfassen:

- Große Spiegel oder ganze Schaufenster wechseln zwischen Reflexion und projizierter Information;
- Kaufhausspiegel verwandeln sich gänzlich in eine von hinten projizierbare Fläche, z. B. mit Video- oder Werbefilmprojektion;
- Verkaufstheken oder Bartheken sind als verspiegelte Körper ausgebildet und werden bei Bedarf durchlässig, so daß man den Thekeninhalt sehen kann (dies ist insbesondere sinnvoll bei Gütern, die man vor Hitze oder vor unbefugtem Zugriff schützen will);
- Lampen, Lampenschirme, Beleuchtungskörper und dergleichen können gänzlich aus dem erfindungsgemäßen Material gefertigt sein;
- Verformte Körper mit einer Oberfläche aus dem erfindungsgemäßen Material lassen sich realisieren;
- Zimmerspiegel können eine Uhr mit Weckfunktion enthalten, wobei sich der Spiegel bei Aktivierung der Weckfunktion in einen Spiegel mit eingeblendeter Uhr- und/oder Bild- und/oder Videoinformation verwandelt;
- Gerätedeckel, Displays von Stereoanlagen und dergleichen können mit einer Folie gemäß der vorliegenden Erfindung beschichtet sein;
- Verchromte Kunststoffteile können mit folierten Teilen gemäß der vorliegenden Erfindung kombiniert werden, z. B. Bildschirme, Laptops, Taschenrechner, Telefone und dergleichen;
- Kulissen für die Filmproduktion können mit dem Material realisiert werden.

Es ist offensichtlich, daß die vorliegende Erfindung nicht auf die vorstehend angeführten speziellen Ausführungsbeispiele und Anwendung beschränkt ist, sondern daß vielmehr zahlreiche Variationen und Modifikationen ausgeführt werden können, ohne vom Schutzbereich der beigefügten Pa-

tentansprüche abzuweichen.

Patentansprüche

1. Reflektierendes Material mit Displayfunktion, zu-
mindest umfassend:
 - eine reflektierende Schicht (1) und
 - eine auf einer Rückseite der reflektierenden Schicht angeordnete Informationsanzeigeschicht (2; 5), um mittels aktiver oder passiver Ausleuchtung Information darzubieten,
 bei welchem Material
 - die reflektierende Schicht zumindest abschnittsweise ein partielles Reflexionsvermögen aufweist, das so gewählt ist,
 - daß die reflektierende Schicht (1) Licht, das von der Vorderseite auf die reflektierende Schicht (1) auftrifft, überwiegend reflektiert, um als Spiegel zu wirken,
 - daß jedoch bei Ausleuchtung der Informationsanzeigeschicht (2; 5) Information von der Vorderseite der reflektierenden Schicht (1) her sichtbar ist.
2. Material nach Anspruch 1, bei dem die reflektierende Schicht (1) mit der Informationsanzeigeschicht (2; 5) so verbunden ist, daß in einen Spalt (3) zwischen den beiden Schichten im wesentlichen stirnseitig kein Licht einfällt.
3. Material nach einem der vorhergehenden Ansprüche, bei dem das Reflexionsvermögen der reflektierenden Schicht (1) im sichtbaren Spektralbereich im wesentlichen konstant ist.
4. Material nach Anspruch 5, bei dem das Reflexionsvermögen vorzugsweise im Bereich von 75 bis 95 Prozent, insbesondere im Bereich von 85 bis 95 Prozent, liegt.
5. Material nach einem der vorhergehenden Ansprüche, bei dem die Informationsanzeigeschicht (2) als transparentes oder semitransparentes Material, insbesondere als Kunststoff-, Glas- oder Textilschicht, mit transparenten und weniger transparenten und auf diese Weise Information darstellenden Abschnitten ausgebildet ist, insbesondere als Filmschicht, die rückseitig passiv ausleuchtbar ist.
6. Material nach Anspruch 5, bei dem die der reflektierenden Schicht (1) abgewandte Seite des transparenten oder semitransparenten Materials eine Licht diffus streuende Oberfläche aufweist.
7. Material nach einem der Ansprüche 1 bis 4, bei dem die Informationsanzeigeschicht (5) einen Array (5) von lichtemittierenden Polymeren umfaßt oder aus diesem besteht.
8. Material nach Anspruch 7, bei dem die Rückseite des Arrays (5) von lichtemittierenden Polymeren eine Licht diffus streuende Oberfläche aufweist.
9. Material nach einem der vorhergehenden Ansprüche, bei dem die reflektierende Schicht durch Aufdampfen einer metallischen Beschichtung oder einer dielektrischen Beschichtung, insbesondere Vielfachbeschichtung, unmittelbar auf die Informationsanzeigeschicht (2; 5) aufgebracht ist.
10. Material nach einem der Ansprüche 1 bis 9, bei dem die reflektierende Schicht (1) als Kunststoffschicht ausgebildet ist, die reflektierend beschichtet ist.
11. Material nach Anspruch 10, bei dem die reflektierende Schicht (1) mit der Informationsanzeigeschicht (2) durch Thermo-Verschweißen verbunden ist.
12. Material nach einem der Ansprüche 4 bis 11, bei

dem die reflektierende Schicht (1) und/oder die Informationsanzeigeschicht (2; 5) plastisch verformt ist.

13. Material nach einem der Ansprüche 1 bis 4, bei dem die Informationsanzeigeschicht (5) so ausgelegt ist, daß zumindest ein Abschnitt von dieser aktiv ausleuchtbar ist.

14. Material nach Anspruch 13, bei dem die Informationsanzeigeschicht (5) als Bildschirm, insbesondere als lichtstarker Plasmabildschirm, ausgebildet ist.

15. Material nach Anspruch 13, bei dem die Informationsanzeigeschicht (5) als Flüssigkristallanzeige (LCD) ausgebildet ist, die für Durchlichtbetrieb mit Hintergrundausleuchtung ausgelegt ist.

16. Material nach Anspruch 13, bei dem die Informationsanzeigeschicht (5) als LED-Array (5) ausgebildet ist.

17. Material nach einem der Ansprüche 13 bis 16, bei dem die reflektierende Schicht (1) als Glas- oder Kunststoffschicht ausgebildet ist, die reflektierend beschichtet ist.

18. Material nach Anspruch 17, bei dem die Informationsanzeigeschicht (5) mit der reflektierenden Schicht durch Verkleben verbunden ist.

19. Material nach einem der Ansprüche 13 bis 18, bei dem die reflektierende Schicht (1) durch Aufdampfen einer metallischen Beschichtung oder einer dielektrischen Beschichtung, insbesondere einer Vielfachbeschichtung, aufgebracht ist.

20. Material nach einem der Ansprüche 13 bis 16, bei dem die reflektierende Schicht (1) durch Aufdampfen einer metallischen Beschichtung oder einer dielektrischen Beschichtung, insbesondere Vielfachbeschichtung, unmittelbar auf die Informationsanzeigeschicht (5) aufgebracht ist.

21. Material nach einem der Ansprüche 7, 8 oder 16, bei dem das Reflexionsvermögen der reflektierenden Schicht (1) ein schmalbandiges Minimum im Bereich der Emissionswellenlänge des Arrays (5) aus LEDs bzw. lichtemittierenden Polymeren aufweist.

22. Material nach Anspruch 21, bei dem das minimale Reflexionsvermögen im Bereich des schmalbandigen Minimums vorzugsweise im Bereich von 50 bis 85 Prozent, insbesondere im Bereich von 50 bis 65 Prozent, liegt.

23. Lampenschirm, dadurch gekennzeichnet, daß dieser zumindest abschnittsweise ein Material nach einem der Ansprüche 1 bis 6 umfaßt.

24. Lampe, gekennzeichnet durch einen Lampenschirm nach Anspruch 23.

25. Spiegel, dadurch gekennzeichnet, daß dieser zumindest abschnittsweise ein Material nach einem der Ansprüche 1 bis 6 und eine Lichtquelle (4) umfaßt, um das transparente oder semitransparente Material von der der reflektierenden Schicht (1) abgewandten Seite des Materials her auszuleuchten.

26. Spiegel, dadurch gekennzeichnet, daß dieser zumindest abschnittsweise ein Material nach einem der Ansprüche 7 bis 22 umfaßt.

27. Spiegel nach Anspruch 26, weiterhin umfassend eine elektrische Steuereinheit, um die Anzeige von Information mit Hilfe der Informationsanzeigeschicht (5) zu steuern.

28. Informationsanzeigevorrichtung, zumindest umfassend:

- ein Material nach einem der Ansprüche 1 bis 6 und
- eine Lichtquelle (4), um das transparente oder semitransparente Material von der der reflektie-

renden Schicht (1) abgewandten Seite des Materials her auszuleuchten.

29. Informationsanzeigevorrichtung, gekennzeichnet durch ein Material nach einem der Ansprüche 7 bis 21 auf einer Vorderseite der Vorrichtung, um als Spiegel und/oder Display zur Anzeige von Information auf der Vorderseite der Vorrichtung zu dienen. 5

30. Informationsanzeigevorrichtung nach Anspruch 29, weiterhin umfassend eine elektrische Steuereinheit, um die Anzeige von Information mit Hilfe der Informationsanzeigeschicht (5) zu steuern. 10

31. Elektrogerät, umfassend einen Spiegel nach einem der Ansprüche 25 bis 27 und/oder eine Informationsanzeigevorrichtung nach einem der Ansprüche 28 bis 30. 15

Hierzu 2 Seite(n) Zeichnungen

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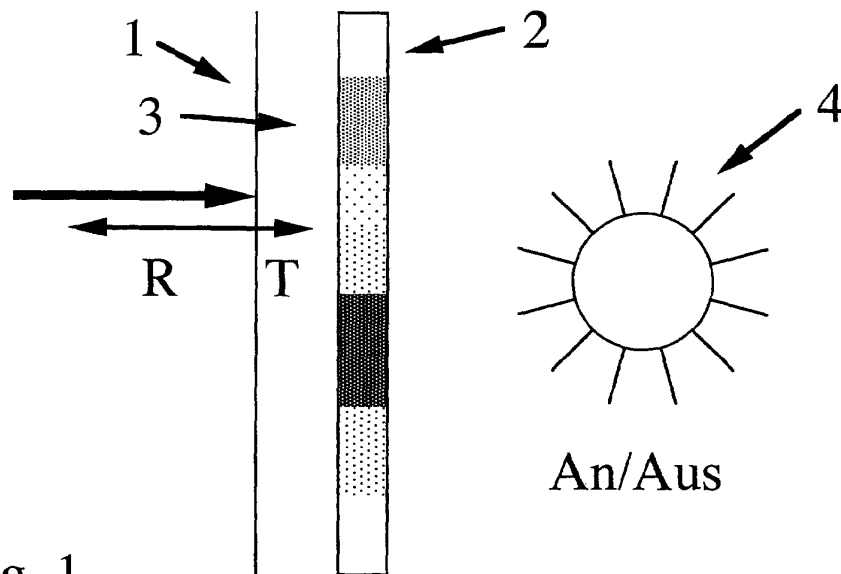


Fig. 1

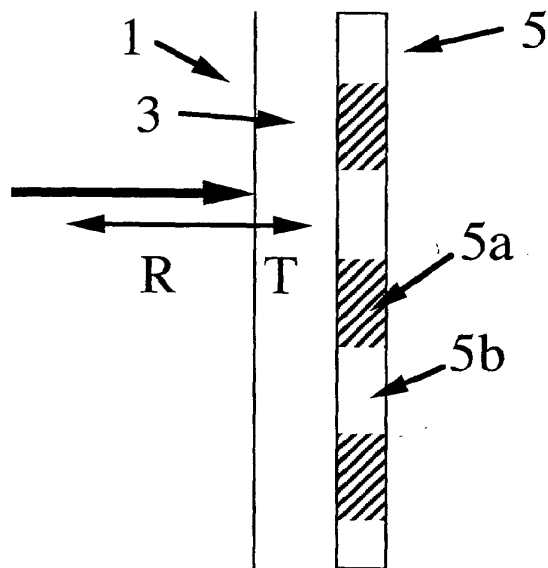
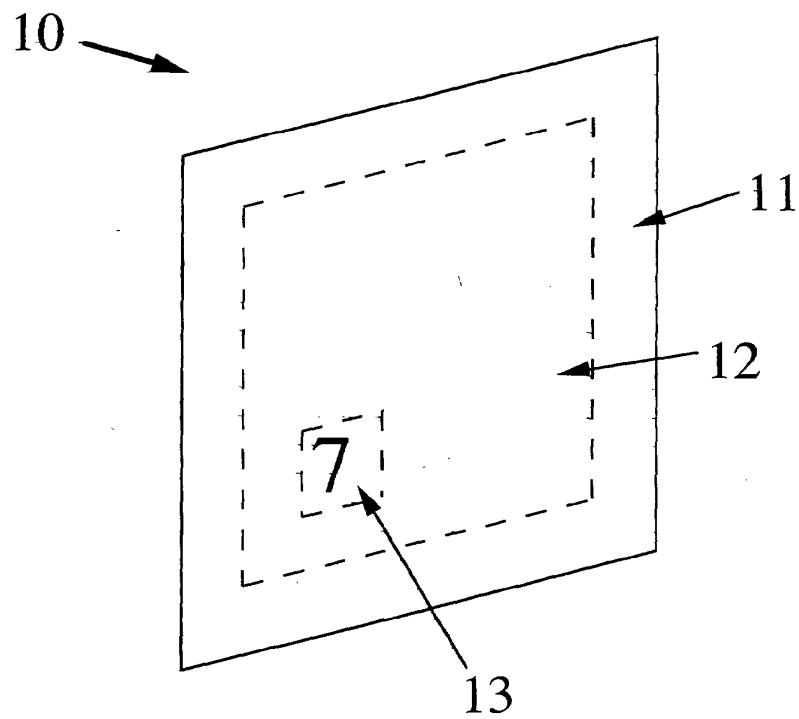
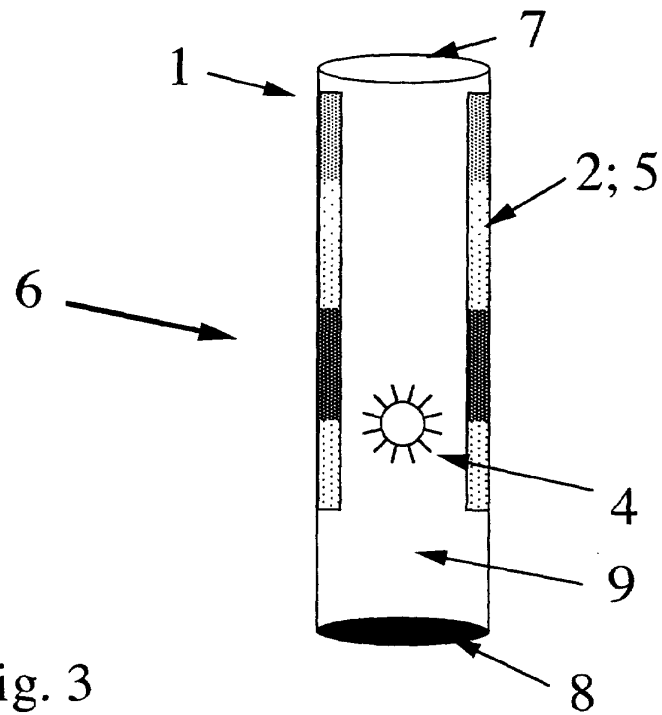
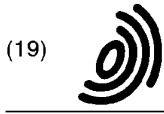


Fig. 2





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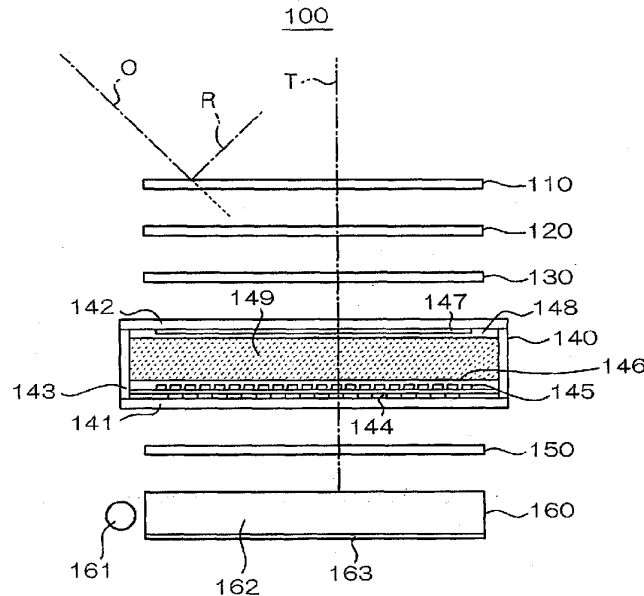
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(54) **Display device with display and mirror modes, and electronic device comprising the same**

(57) In a display device capable of switching between a display mode and a mirror mode, a novel configuration of the display device capable of enhancing display quality and being low-profile and light-weight is provided. In a display device (100), a reflective polarizer (110), a polarizer (120), a retarder (130), a liquid crystal panel (140), a polarizer (150), and a backlight (160) are

disposed sequentially from the viewing side. When the liquid crystal panel (140) is set in a light blocking state or the backlight (160) is switched off, the reflection of an outside light "O" turns the display screen into the mirror state. When the backlight (160) is switched on to illuminate the liquid crystal panel (140), a transmitted light "T" allows the displayed screen image to be visually recognized.

FIG. 1



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Description

[0001] The present invention relates to a display device and an electronic device having the same, particularly to a configuration suitable for a display capable of switching a display screen between a display mode and a mirror mode.

[0002] Traditionally, a display device has been known in which two liquid crystal panels are overlaid to switch between the display mode to perform normal display and the mirror mode to change the whole piece into a mirror surface state. For example, there is a display device in which a display switching part is disposed on the viewing side of a display part having the same structure as the general liquid crystal display device and the display switching part is disposed with a reflective type polarizer, a liquid crystal panel and an absorption type polarizer sequentially from the display part side to the viewing side. In this display device, the reflective type polarizer (hereafter, it is simply called reflective polarizer) of the display switching part transmits a first polarized light, and reflects a second polarized light having a polarization axis orthogonal to the first polarized light. The liquid crystal panel is configured to allow switching between the state that the first polarized light is changed to the second polarized light for transmission and the state that the polarization axis is not changed for transmission. The absorption type polarizer transmits the first polarized light and absorbs the second polarized light, for example. The display part emits the first polarized light to the display switching part, and the first polarized light forms a predetermined display image.

[0003] In the display device configured as above, when the liquid crystal panel of the display switching part is in the state that the polarization axis is not changed for transmission, the first polarized light emitted from the display part passes through the reflective polarizer to enter the liquid crystal panel and passes through the absorption type polarizer as the first polarized light for observation. Thus, the display condition of the display part can be visibly recognized (the display mode). When the liquid crystal panel is in the state that the first polarized light is changed into the second polarized light for transmission, the first polarized light emitted from the display part passes through the reflective polarizer to enter the liquid crystal panel, and it is changed into the second polarized light. Thus, it is absorbed by the absorption type polarizer and the display condition is not visually recognized. At this time, when an outside light enters the device, the outside light passes through the absorption type polarizer to be a first polarized light and passes through the liquid crystal panel to be a second polarized light. Therefore, it is reflected by the reflective polarizer, and it passes through the liquid crystal panel again to be changed into the first polarized light, and it passes through the absorption type polarizer. Accordingly, the display plane is visibly recognized as a mirror surface (the mirror mode).

[0004] In the traditional display device, the light having passed through the liquid crystal panel, disposed in the display switching part, is visibly recognized in both the display mode and the mirror mode. Therefore, problems tend to occur : a reduction in contrast due to the interface reflection in the front and back sides of the display switching part, coloring, the deterioration of the viewing angle property, and a blurred display image due to the optical property of the display switching part. In any case, in the traditional display device, degraded display quality is inevitable due to the double structure of the display part and the display switching part.

[0005] Furthermore, in the configuration described above, the display switching part including the liquid crystal panel is further disposed on the viewing side of the normal display part. Thus, there is a problem that the device becomes thicker and heavier. This problem becomes a great disadvantage because portability is impaired, particularly, when the device is mounted in a portable electronic device.

[0006] To solve the problems, the present invention is to provide a novel configuration of a display device capable of suppressing the degradation of display quality such as a reduction in contrast, coloring, a narrowed viewing angle and blur due to the existence of the display switching part, and of being formed to be low-profile and light-weight.

[0007] In order to solve the problems, a first display device of the invention is a display device characterized by having:

- a display unit adapted to allow a first polarized light to be emitted as display light; and
- a control unit adapted to control the display unit,

wherein the display unit has a polarized light selecting unit on a viewing side thereof,

the polarized light selecting unit transmits the first polarized light and reflects a second polarized light having a polarization axis crossing a polarization axis of the first polarized light, and

the control unit is allowed to switch between a display mode, in which the first polarized light is emitted from the display unit as display light, and a mirror mode, in which the first polarized light is not emitted from the display unit.

[0008] According to the invention, the display unit includes the polarized light selecting unit disposed on the viewing side. The polarized light selecting unit is configured to transmit the first polarized light and reflect the second polarized light.

[0009] Therefore, the first polarized light passing through the polarized light selecting unit is emitted from the display unit as display light. In addition, the first polarized light included in the outside light passes through the polarized light selecting unit to enter the opposite side of the viewing side, and the second polarized light included in the outside light is reflected by the polarized

light selecting unit.

[0010] The high intensity light in the outside light generally enters in the direction different from the viewing direction of a viewer. Thus, the specular reflection of the high intensity outside light is hard to enter the viewer's eye. Therefore, in the display mode that display light is visibly recognized from the display unit through the polarized light selecting unit, the display condition, based on the display light emitted from the display unit, can be visibly recognized. On the other hand, when the mirror mode is set by control of the control unit, the first polarized light is not emitted from the display unit. Thus, the light emitted from the display unit does not reach the viewing side. Therefore, the surface on the viewing side of the polarized light selecting unit is visibly recognized as a mirror surface by the reflected light of the outside light.

[0011] As described above, in the invention, the polarized light selecting unit is simply disposed on the viewing side as a component included in the display unit. Therefore, the configuration can be formed in which a transmitting polarization axis varying unit is not disposed on the viewing side of the polarized light selecting unit.

[0012] Accordingly, as compared with the case where the transmitting polarization axis varying unit, such as a liquid crystal panel, is disposed on the viewing side of the traditional display unit, the degradation of display quality such as a reduction in contrast due to the interface reflection, coloring, deterioration of the viewing angle property, and blurred display images due to the optical property of the display switching part can be avoided. Furthermore, a simple structure can be formed without the double panel structure. Therefore, the thickness of the device can be reduced and the weight can be decreased.

[0013] The control unit preferably stops the light emission from the display unit in the mirror mode. Accordingly, the display unit does not emit light, thus the mirror surface quality in the mirror mode can be further enhanced.

[0014] Moreover, a polarized light selecting area of the polarized light selecting unit is preferably extended beyond an area overlapping with a display area of the display unit. The polarized light selecting area of the polarized light selecting unit is extended beyond the area overlapping with the display area of the display unit. Thus, the display unit (an electro-optical panel such as a liquid crystal panel) generally requires the structure portion extending beyond its display area (so-called frame area). Therefore, in the area overlapping with the structure portion, the polarized light selecting area of the polarized light selecting unit can be extended without increasing the plan dimension of the display device. Accordingly, the space inside the display device can be utilized effectively, and the range (area) to be visibly recognized as a mirror in the mirror mode can be expanded relatively with respect to the outer dimensions of the display device.

play device.

[0015] The light amount emitted in the direction of the normal is preferably greatest in the emission angle distribution of the display light of the display unit. The light amount emitted in the direction of the normal is set greatest, and thus the ratio of light entering the user's eye for supporting display can be enhanced in the display light. Therefore, the influence of external light reflection by the polarized light selecting unit can be reduced, and display quality can be enhanced.

[0016] In this case, the display light is desirably distributed mainly at an emission angle ranging from zero (0) to forty (40) degrees. In this range of the emission angle, an amount of the emitted outside light is relatively small. Thus, display quality can be enhanced with no influence of external light reflection.

[0017] In addition, the display light in the range exceeding an emission angle of forty five (45) degrees is desirably one fiftieth (1/50) or below of the light amount in the direction of the normal. The light in the range exceeding the emission angle of forty five (45) degrees hardly supports display. Therefore, unnecessary light is reduced to efficiently configure the display condition.

[0018] In each embodiment, the display unit is preferably configured of an electro-optical device. By configuring the display unit with electro-optical devices, a low-profile structure can be allowed and a display device also applicable to a portable device can be realized. Particularly, the display device of the invention can configure the display screen as a mirror surface in the mirror mode by switching. Therefore, it can also be utilized as a hand mirror configured of a portable device.

[0019] Next, a second display device of the invention is a display device having a transmitting polarization axis varying unit characterized by including:

a first polarized light selecting unit disposed on a viewing side of the transmitting polarization axis varying unit; and
a second polarized light selecting unit disposed on a backside of the transmitting polarization axis varying unit,

wherein the first polarized light selecting unit transmits a first polarized light and reflects a second polarized light having a polarization axis crossing a polarization axis of the first polarized light,

the second polarized light selecting unit transmits a third polarized light and absorbs or reflects a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light, and

the transmitting polarization axis varying unit is allowed to convert at least a part of the third polarized light to the first polarized light.

[0020] According to the invention, the first polarized light selecting unit (reflective polarizer) disposed on the viewing side reflects the outside light. Thus, the display screen is allowed to be set in the mirror mode, when the

liquid crystal panel does not emit light. When the liquid crystal panel emits light, the display screen is allowed to be set in the display mode. The outside light has a greater light amount incident, incidenting obliquely with respect to the user. Thus, a high intensity specular reflection light generated in the first polarized light selecting unit due to the outside light is not visually recognized by the user. Therefore, by intensifying the emitting light from the liquid crystal panel to some extent, display quality in the display mode can be secured. In addition, the mirror mode can be substantially realized only by the first polarized light selecting unit. Accordingly, the degraded display quality due to the double panel structure can be avoided, and the display device can be formed to be low-profile and light-weight.

[0021] In the invention, another transmitting polarization axis varying unit is not preferably disposed on the viewing side of the first polarized light selecting unit. A reduction in visibility can be suppressed in the display mode by not disposing another transmitting polarization axis varying unit (a liquid crystal panel, for example) on the viewing side of the first polarized light selecting unit.

[0022] In the invention, a third polarized light selecting unit, adapted to transmit the first polarized light and to absorb the second polarized light, is preferably disposed between the first polarized light selecting unit and the transmitting polarization axis varying unit. Generally, the polarized light selectivity of a member available as the first polarized light selecting unit (reflective polarizer) is lower than the polarized light selectivity of the absorption type polarizer. Thus, a contrast in the display mode drops when the member is used as it is, but a disposition of the third polarized light selecting unit (absorption type polarizer) enhances the polarized light selectivity. Therefore, display contrast can be enhanced.

[0023] Preferably, this case has a lighting device on the backside of the second polarized light selecting unit, wherein the second polarized light selecting unit transmits the third polarized light and absorbs the fourth polarized light,

a fourth polarized light selecting unit is disposed between the second polarized light selecting unit and the lighting unit, and

the fourth polarized light selecting unit preferably reflects the fourth polarized light as well as transmits the third polarized light. Accordingly, display contrast and brightness can be further enhanced.

[0024] In the invention, the second polarized light selecting unit preferably transmits the third polarized light and reflects the fourth polarized light. The second polarized light selecting unit is formed to transmit the third polarized light and to reflect the fourth polarized light (reflective polarizer). Consequently, the light not passing through the second polarized light selecting unit can be reflected to return to the backside in the luminous light when the liquid crystal panel is lit from the backside. Because it is possible to convert the polarization state of the reflected light by scattering or reflection to return to

the viewing side, a brighter display can be configured.

[0025] In the invention, the surface on the viewing side of the first polarized light selecting unit is preferably flat. By flattening the surface on the viewing side of the first polarized light selecting unit, a further excellent mirror surface state in the mirror mode can be realized, and the scattered light other than the specular reflection light of the outside light entering the user's eye can be reduced in the display mode. Therefore, the visibility of the display condition can be enhanced. This characteristic is similarly applicable to the above-mentioned first and second display devices, considering that the polarized light selecting unit is equivalent to the first polarized light selecting unit.

[0026] In the invention, a transparent protective film is preferably formed on the surface on the viewing side of the first polarized light selecting unit. Accordingly, the surface on the viewing side of the first polarized light selecting unit can be prevented from being directly scratched or from being adhered with dust and dirt. Desirably in this case, the surface of the protective film is hardened or a transparent hard film is formed thereon. Furthermore, this characteristic is similarly applicable to the first and second display devices, considering that the polarized light selecting unit is equivalent to the first polarized light selecting unit.

[0027] In the invention, a lighting unit adapted to emit light to the viewing side is preferably disposed on the backside of the second polarized light selecting unit. Disposing the lighting unit surely realizes the image display state in the display mode.

[0028] In this case, a light reflection component for reflecting outside light to the viewing side in the form of supporting display is preferably not disposed between the first polarized light selecting unit and the lighting unit. Accordingly, the light reflection component is not disposed inside the display to form a transmissive type display. Consequently, the light utilization efficiency of the lighting unit for display can be enhanced. Therefore, the display condition can be visually surely recognized regardless of the existence of external light reflection by the first polarized light selecting unit. The light reflection component includes a reflective layer or a reflective plate disposed in the pixel area, in which the reflected light is supportable for display, but it does not include a metal shading film, which generates the reflected light not supporting display.

[0029] The transmitting polarization axis varying unit is desirably in the state not to emit the first polarized light when the lighting unit is not lit. The mirror mode can be realized in either states that the lighting unit is not lit or the light of display is blocked. However, by setting the lighting unit in the unlit state and the display in the light blocking state, light leakage can be further reduced. Therefore, the mirror surface state in the mirror mode can be formed more excellently.

[0030] In the invention, a polarized light selecting area of the first polarized light selecting unit is preferably ex-

tended beyond the area overlapping with a transmitting polarization axis varying area of the transmitting polarization axis varying unit. When the polarized light selecting area of first polarized light selecting unit is extended beyond the area overlapping with the transmitting polarization axis varying area of the transmitting polarization axis varying unit, the transmitting polarization axis varying unit (liquid crystal panel) generally requires the structure portion (so-called frame area) extended beyond the transmitting polarization axis varying area (display area). Therefore, the polarized light selecting area of the first polarized light selecting unit can be extended correspondingly to the structure portion without upsizing the display device. Accordingly, the inner space of the display device can be utilized efficiently, and the range (area) to be visibly recognized as a mirror in the mirror mode can be expanded relatively with respect to the outer dimensions of the display device. In addition, this characteristic is similarly applicable to the first and second display devices, considering that the polarized light selecting unit is equivalent to the first polarized light selecting unit and the display area of the display unit is equivalent to the transmitting polarization axis varying area.

[0031] In the invention, the light amount emitted in the direction of the normal is preferably greatest in the emission angle distribution of luminous light of the lighting unit. By setting the light amount emitted in the direction of the normal at greatest, the ratio of the light entering the user's eye for supporting display in the luminous light can be increased in the display mode. Therefore, the influence of external light reflection due to the first polarized light selecting unit can be decreased, and display quality can be enhanced.

[0032] In this case, the luminous light of the lighting unit is desirably distributed mainly at an emission angle ranging from zero (0) to forty (40) degrees. In the range of the emission angle, the amount of specular reflection of outside light is relatively small. Therefore, display quality can be enhanced with no influence of external light reflection.

[0033] Furthermore, the luminous light of the lighting unit within the range exceeding an emission angle of forty five (45) degrees is desirably one fiftieth (1/50) or below of a light amount in the direction of the normal. The light in the range exceeding an emission angle of forty-five (45) degrees does not support display so much. Thus, unnecessary light is reduced to efficiently realize the display state in the display mode.

[0034] In the invention, a color filter is preferably disposed on the backside of the first polarized light selecting unit. By disposing the color filter on the backside of the first polarized light selecting unit, color display in the display mode can be realized.

[0035] In the invention, a retarder is preferably disposed between the first polarized light selecting unit and the transmitting polarization axis varying unit. The retarder can be used as an optical compensator for reduc-

ing coloring, or a viewing angle compensator for improving the viewing angle property.

[0036] In the invention, it is preferable that a transparent member is disposed on the viewing side of the first polarized light selecting unit, and the first polarized light selecting unit is directly or indirectly closely contacted with the transparent member. The first polarized light selecting unit is closely contacted with the transparent member, which allows the surface on the viewing side of the first polarized light selecting unit to be protected and the first polarized light selecting unit can surely be positioned and held. This characteristic is similarly applicable to the first and second display devices, considering that the polarized light selecting unit is equivalent to the first polarized light selecting unit.

[0037] In this case, the first polarized light selecting unit is desirably bonded to the transparent member via a transparent substance.

[0038] As the form that the first polarized light selecting unit is fixed to the transparent member, two cases are named: the case where only the first polarized light selecting unit is fixed to the transparent member, and the case where the display unit or the transmitting polarization axis varying unit is fixed along with the first polarized light selecting unit. In the latter case, it is preferable to fix the transparent member via a transparent bonding layer having elasticity. Accordingly, the influence of an external stress (such as shock) on the display unit and the transmitting polarization axis varying unit can be relaxed, and the shock-resistance of the display device can be enhanced. In addition, this characteristic is similarly applicable to the first and second display devices, considering that the polarized light selecting unit is equivalent to the first polarized light selecting unit.

[0039] Furthermore, the surface of the transparent member on the first polarized light selecting unit is desirably flat. Accordingly, the surface on the backside of the transparent member is made flat. Therefore, the surface on the viewing side of the first polarized light selecting unit closely contacted with the surface can be formed flat. Particularly, the first polarized light selecting unit is available as a sheet material having flexibility. Thus, the surface on the backside of the transparent member is formed flat and the first polarized light selecting unit is closely contacted or bonded to the surface, which allows the first polarized light selecting unit to be kept flat. Therefore, the mirror surface state in the mirror mode can be high quality. Furthermore, this characteristic is similarly applicable to the first and second display devices, considering that the polarized light selecting unit is equivalent to the first polarized light selecting unit.

[0040] Moreover, the surface on the viewing side of the transparent member is desirably a curved surface. Accordingly, the transparent member can be used as an optical lens, which allows the display screen to be visibly recognized in a properly enlarged or reduced state. This characteristic is similarly applicable to the first and second display devices, considering that the polarized light

selecting unit is made equivalent to the first polarized light selecting unit.

[0041] Next, an electronic device of the invention is provided with the display device according to any one of the above. As described above, the display device is configured to be switchable between the display mode and the mirror mode by only disposing the polarized light selecting unit on the viewing side of the display unit. Therefore, degraded display quality can be avoided, and also the electronic device can be reduced in size and weight. Accordingly, the electronic device is preferably configured as portable electronic devices such as a mobile phone and a personal information terminal.

[0042] In addition, another electronic device of the invention has the display device according to any one of the above and a display drive unit adapted to drive the transmitting polarization axis varying unit. The display device is switchable, as described above, between the display mode and the mirror mode without disposing another transmitting polarization axis varying unit on the viewing side. Therefore, display quality in the display mode can be improved. Particularly, the display device can be formed to be low-profile and light-weight, and thus the electronic device is preferably configured as portable electronic devices such as a mobile phone and a personal information terminal.

[0043] Furthermore, another electronic device of the invention has:

a display device with a lighting unit;
a display drive unit adapted to drive the transmitting polarization axis varying unit; and
a lighting control unit adapted to control the lighting unit. Particularly, by configuring the display drive unit and the lighting control unit to operate together, it is possible to set lighting unit in the unlit state and at the same time, it is possible to set the light blocking state by controlling the transmitting polarization axis varying unit. Accordingly, light leakage can be reduced in the mirror mode, and the mirror surface state can be configured in a further excellent form.

[0044] Moreover, still another electronic device of the invention is characterized by having a display unit adapted to allow light emission,

wherein the display unit has a polarized light selecting unit adapted to transmit a first polarized light and to reflect a second polarized light having a polarization axis crossing a polarization axis of the first polarized light on a viewing side thereof, and

a transmissive display mode, in which the first polarized light is emitted from the polarized light selecting unit to the viewing side of the display unit to allow the first polarized light to be observed on the viewing side, and a mirror mode, in which the first polarized light is not emitted from the polarized light selecting unit to the viewing side of the display unit, and the polarized light selecting unit is used as a mirror on the viewing side of

the display unit, are switchable.

[0045] Preferably, the electronic device further has an input part for allowing an operation of the display device or performing data input to the display in the display device,

wherein the input part is preferably manually operated to allow switching between the transmissive display mode and the mirror mode.

[0046] Manually operating the input part of the electronic device allow switching between the transmissive display mode and the mirror mode. Therefore, any one of the transmissive display mode and the mirror mode can be implemented at any time at the user's wish. Here, as the input part, various manual operation buttons such as a data input key button, various operation switches such as a power switch, and operation members such as an operation dial can be named.

[0047] Embodiments of the present invention will now be described by way of further example only and with reference to the accompanying drawings, in which:-

Fig. 1 is a schematic diagram illustrating the configuration of the display device of the first embodiment in the invention;

Fig. 2 is a schematic diagram illustrating the configuration of the display device of the second embodiment in the invention;

Fig. 3 is a schematic diagram illustrating the configuration of the display device of the third embodiment in the invention;

Fig. 4 is a schematic diagram illustrating the configuration of the display device of the fourth embodiment in the invention;

Fig. 5 is a schematic diagram illustrating the configuration of the display device of the fifth embodiment in the invention;

Fig. 6 is a schematic diagram illustrating the configuration of the display device of the sixth embodiment in the invention;

Fig. 7 is a schematic diagram illustrating the configuration of the display device of the seventh embodiment in the invention;

Fig. 8 is a schematic diagram illustrating the configuration of the display device of the eighth embodiment in the invention;

Fig. 9 is a schematic diagram illustrating the configuration of the display device of the ninth embodiment in the invention;

Fig. 10 is an enlarged vertical cross-sectional view illustrating the enlarged EL panel structure of the ninth embodiment;

Fig. 11 is a graph illustrating the luminance of the backlight against the emission angle distribution of the tenth embodiment in the invention;

Fig. 12 is a schematic block diagram illustrating the configuration of the display control system in the electronic device provided with the display device; Fig. 13 is a schematic perspective view illustrating

the appearance of the electronic device (mobile phone); and

Fig. 14 is a schematic perspective view illustrating another electronic device (mobile phone).

[First embodiment]

[0048] First, the configuration of a first embodiment in the invention will be described with reference to Fig. 1. In a display device 100 shown in Fig. 1, a reflective polarizer 110, a polarizer 120, a retarder 130, a liquid crystal panel 140, a polarizer 150, and a backlight 160 are sequentially disposed from the viewing side (the upper side in the drawing).

[0049] The reflective polarizer 110 transmits a polarized light component having a vibration plane in parallel to the transmitting polarization axis, and reflects a polarized light component having a vibration plane in parallel to the direction crossing (preferably orthogonal) the transmitting polarization axis. As the reflective polarizer, a multilayer product having birefringent polymer films different from each other laminated, that is the multilayer product described in PCT/A/WO95/27919, or a product having a quarter (1/4) wavelength plates disposed on the front and back sides of a cholesteric liquid crystals can be used. As the multilayer product, there is a multilayer film, whose trade name is DBEF, provided by Minnesota Mining & Manufacturing Co.

[0050] As the polarizers 120 and 150, a publicly-known absorption type polarizer is used, which transmits the polarized light component having the vibration plane in parallel to the transmitting polarization axis and absorbs the polarized light component having the vibration plane in parallel to the direction crossing the transmitting polarization axis (preferably orthogonal). The polarizer 120 and the polarizer 150 are arranged in a required configuration of the liquid crystal device (for example, they are arranged in the crossed Nicols when the liquid crystal panel 140 is a TN liquid crystal cell having a twisted angle of ninety (90) degrees).

[0051] The polarizer 120 is disposed so that the transmitting polarization axis is matched with the transmitting polarization axis of the reflective polarizer 110. The crossed axes angle between the transmitting polarization axis of the reflective polarizer 110 and the transmitting polarization axis of the polarizer 120 is not necessarily zero degree. However, display contrast is reduced as the crossed axes angle becomes greater. Therefore, the crossed axes angle is desirably fifteen (15) degrees or below, particularly five (5) degrees or below.

[0052] Optically, the polarizer 120 can be omitted. However, the polarized light selectivity of the reflective polarizer 110 (the ratio of the polarized light component having the vibration plane in parallel to the transmitting polarization axis in the transmitted light with respect to the incident natural light) is generally lower than that of the absorption type polarizer. Thus, when the polarizer 120 is omitted, a contrast in the display mode is reduced.

Inversely, when the polarization degree of the reflective polarizer (the polarized light selecting unit or first polarized light selecting unit) does not cause a problem, the absorption type polarizer (the third polarized light selecting unit) included in the display unit can be omitted for configuration. In this case, the function is served by the reflective polarizer (the polarized light selecting unit or first polarized light selecting unit). In addition, this is similarly applicable to all the embodiments including the absorption type polarizer described below (the third polarized light selecting unit).

[0053] Furthermore, as the polarizer 150, a reflective polarizer similarly configured to the reflective polarizer 110 can be used, instead of the absorption type polarizer.

[0054] The retarder 130 functions as an optical compensator for reducing display coloring, particularly, when the liquid crystal panel 140 is the STN mode. It can also be configured to function as a viewing angle compensator for improving the viewing angle dependency of liquid crystal display. Display itself is feasible without disposing the retarder 130.

[0055] The liquid crystal panel 140 includes two substrates 141 and 142 formed of a transparent substrate such as glass or plastic. Over the inner surface of the substrate 141, a color filter 144 is formed. In the color filter 144, a plurality of colored layers, for example, red, green and blue, are arranged in a predetermined array pattern (such as a stripe array, a delta array, and a diagonal mosaic array). These colored layers are preferably covered with a transparent protective film.

On the color filter 144, a transparent electrode 145 configured of ITO or the like is formed corresponding to the array of the colored layer. Over the transparent electrode 145, an alignment layer 146 configured of polyimide resin is formed. In addition, over the inner surface of the substrate 142, a transparent electrode 147 and an alignment layer 148 similar to the above are formed.

[0056] In the panel structure, it is acceptable that a pair of substrates forming the panel structure is any of those using glass as the material (including silica), those using resins (plastic), or those using glass for one substrate and a resin for the other substrate. Particularly, by using a resin material for the material of the substrates, the device can be formed low-profile and can enhance the shock-resistance as well.

[0057] The substrates 141 and 142 are bonded by a sealing material 143, and liquid crystal 149 are disposed inside thereof. As the liquid crystal mode of the liquid crystal panel 140 thus configured, the TN (Twisted Nematic) mode, the STN (Super Twisted Nematic) mode, and the ECB (Electrically Controlled Birefringence) mode are preferable. In all the display method according to these liquid crystal modes, the liquid crystal panel is configured to realize the display condition with the use of the polarizer. Thus, high display quality can be obtained at a relatively low drive voltage, which is particularly desirable when it is mounted in a portable

electronic device.

[0058] Furthermore, as the drive mode of the liquid crystal panel 140, any of the active drive mode including the active matrix drive using an active device such as a TFT (Thin Film Transistor) and a TFD (Thin Film Diode), or the passive drive mode including the simple drive without using the active device or the multiplex drive, is acceptable.

[0059] Moreover, in the embodiment, the liquid crystal panel 140 is a transmissive type panel with no reflective layer or reflector inside or outside. More specifically, the embodiment does not have a light reflection component (reflecting surface) for reflecting the outside light to the viewing side in the pixel, which is different from a reflective type panel or a semi-transmissive reflective type panel. The above mentioned light reflection component means a component having a light reflecting function inside the area for supporting display (in the pixel), which is a concept not containing a metal light blocking layer that does not support display. Of course, the light reflection component not supporting display such as a metal shading film desirably does not exist.

[0060] It is acceptable to use a backlight 160 that can light the liquid crystal panel 140 from behind with nearly uniform illuminance. For example, an edge emitting type backlight including a light guide plate and a light source disposed in the end face part of the light guide plate, and a back emitting type backlight including a light guide plate and a light source disposed on the backside of the light guide plate, are named. In the example shown in the drawing, it has a light source 161 and a light guide plate 162 having the light source 161 disposed to its end face. Preferably, a light reflection component, such as a metal layer or a printed layer for nearly uniformly guiding the light incident from the light source 161 to the liquid crystal panel 140 side, or a scattering component 163, is disposed in the light guide plate 162.

[0061] In the embodiment, the polarizer 120, the retarder 130, the liquid crystal panel 140, the polarizer 150 and the backlight 160 configure the display unit. Basically, this display unit emits only the first polarized light to the reflective polarizer 110. In the display mode, the first polarized light is controlled to be emitted or not to be emitted, or an amount of the first polarized light to be emitted is controlled on each of a plurality of pixels formed in the liquid crystal panel 140. Consequently, a predetermined display image is formed.

[0062] In the display device 100 of the embodiment, the backlight 160 is set in the lit state and a voltage applied between the transparent electrodes 145 and 147 of the liquid crystal panel 140 is controlled. Thus, predetermined display is performed in a liquid crystal display formed of the polarizer 120, the retarder 130, the liquid crystal panel 140 and the polarizer 150. Therefore, the display mode that the light emitted from the polarizer 120 passes through the reflective polarizer to be visibly recognized can be realized.

In addition, by setting the liquid crystal display in the off

(light blocking) state, that is, setting all the pixels of the liquid crystal display in the light blocking state, or setting the backlight 160 in the unlit state, the mirror mode that a display plane is visibly recognized as a mirror can be realized.

[0063] In the display device 100, an outside light "O" enters from the viewing side in the normal service conditions. However, a portion of the outside light "O", that is the polarized light component having the vibration plane in parallel to the transmitting polarization axis of the reflective polarizer 110 passes through the reflective polarizer 110, and is guided to inside. The polarized light component having the vibration plane orthogonal to the transmitting polarization axis of the reflective polarizer 110 is reflected by the reflective polarizer 110, and is returned to the viewing side as a reflected light "R." On the other hand, the luminous light radiated from the backlight 160 passes through the polarizer 150 to be a linear polarized light. Its polarization state is converted in the liquid crystal panel 140, or the light passes as it is without being converted. Only the polarized light component having the vibration plane in parallel to the transmitting polarization axis of the polarizer 120 is emitted from the polarizer 120. This polarized light component also passes thorough the reflective polarizer 110 as it is, and it is visibly recognized on the viewing side. Accordingly, when the liquid crystal display is in the state of displaying a particular image, the light passes in the transparent area formed according to the display image, and it passes through the reflective polarizer 110 to be visibly recognized as a transmitted light "T."

[0064] In the display mode, the particular display image is visually recognized by the transmitted light "T," but the reflected light "R" due to the outside light "O" exists at this time. Thus, the visibility of the display image seems to be reduced. However, the outside light "O" usually enters the display device 100 from the direction different from the user's viewing direction. Therefore, the light amount of the reflected light "R" (the specular reflection light), generated in the reflective polarizer 110 and directly entering the user's eye, is small, and most of it is reflected in the direction different from the user's eye as shown in the drawing. Accordingly, when the transmitted light "T" is intense enough, a reduction in the visibility of the display image due to the reflected light "R" can be limited.

[0065] In the mirror mode, the liquid crystal display is in the light blocking state, or the backlight 160 is in the unlit state, thus the transmitted light "T" is almost eliminated. Therefore, the reflected light R is felt more intense correspondingly, and the entire display plane is visibly recognized as a mirror.

[0066] Furthermore, when the mirror mode is configured, it is preferable to set the backlight 160 in the unlit state as well as to set the liquid crystal display in the light blocking state. When this is done, light leakage can be prevented nearly perfectly. Accordingly, the transmitted light "T" can be further reduced, and a more excel-

lent mirror surface state can be obtained.

[0067] In the embodiment, the reflective polarizer 110 is disposed on the viewing side. Thus, a significantly excellent mirror surface state can be obtained. In addition to this, another liquid crystal panel does not exist on the viewing side of the liquid crystal display, and therefore the influence on the display image can be reduced as well. Accordingly, display quality can be kept excellently as well. Moreover, the embodiment does not have the double layer panel structure. Therefore, the display device can be formed to be low-profile and light-weight can be achieved as well.

[0068] Moreover, the surface on the viewing side of the reflective polarizer 110 is preferably flat. When the surface on the viewing side of the reflective polarizer 110 is flat, the mirror surface state can be configured more excellently, and quality as a mirror can be enhanced. Thus the situation that the specular reflection light of the outside light "O" having high intensity tends to enter the user's eye in the display mode will not occur. (Such a situation may occur when the surface is not flat.) Therefore, the visibility of the display image can be prevented from being reduced. Preferably, the surface is optically flat (optical flat), particularly, in the visible light area.

[Second embodiment]

[0069] Next, a second embodiment in the invention will be described with reference to Fig. 2. In this embodiment, the same components as the first embodiment are designated the same numerals and signs, and omitting the description for them. In the embodiment, a reflective polarizer 110, a polarizer 120, a retarder 130, a liquid crystal panel 140, a polarizer 150, and a backlight 160 are sequentially disposed from the viewing side. The different point from the first embodiment is in that a reflective polarizer 170 is further disposed between the polarizer 150 and the backlight 160. This reflective polarizer 170 is the same as the reflective polarizer 110, but its transmitting polarization axis is disposed in the attitude matched with the transmitting polarization axis of the polarizer 150.

[0070] In the embodiment, the reflective polarizer 170 reflects the polarized light component of the luminous light emitted from the backlight 160, which does not pass through the polarizer 150, to the backlight 160 side. The reflected polarized light component enters the light guide plate 162, and the polarization state of at least a part of light is changed and reflected to the viewing side again. A part thereof passes through the reflective polarizer 170 and the polarizer 150 to be a part of the transmitted light "T." Accordingly, a part of light not utilized for display in the first embodiment can be reused. Thus, the brightness of the display image can be enhanced, and display quality in the display mode can be enhanced.

[0071] In the embodiment, it is also possible that the polarizer 150 is omitted to allow display of the liquid crys-

tal display only by the reflective polarizer 170. However, in this case, the polarized light selectivity of the reflective polarizer 170 (the transmittance of the polarized light component having the vibration plane in parallel to the transmitting polarization axis, or the reflectance of the polarized light component having the vibration plane orthogonal to the transmitting polarization axis) is lower than that of the absorption type polarizer. Thus, display contrast is reduced, or display brightness is decreased. In addition, at least a part of the light in the outside light "O" having transmitted through the reflective polarizer 110 on the viewing side (for example, the light to enter a pixel in the light blocking state) is likely to be reflected on the reflective polarizer 170. And, it can be considered that the reflection causes the visibility of the display image to be reduced.

[Third embodiment]

[0072] Next, a third embodiment in the invention will be described with reference to Fig. 3. In this embodiment, the same components as the second embodiment are designated the same numerals and signs, and omitting the description for them. In the embodiment, a reflective polarizer 110, a polarizer 120, a retarder 130, a liquid crystal panel 140, a polarizer 150, a reflective polarizer 170, and a backlight 160 are disposed sequentially from the viewing side. A transparent protective film 111 is further formed on the surface on the viewing side of the reflective polarizer 110.

[0073] The protective film 111 can be formed of a thin film such as acryl resin, SiO₂ and TiO₂. Particularly, it is preferably a hard protective film having a hardness equal to or greater than inorganic glass such as SiO₂ and TiO₂. It is acceptable that the protective film is a product bonded with a film or sheet formed of a transparent material, or a product directly deposited on the surface of the reflective polarizer 110 by coating, evaporation, and sputtering.

[0074] In the embodiment, the transparent protective film 111 is formed on the surface on the viewing side of the reflective polarizer 110. Therefore, the surface of the reflective polarizer 110 can be prevented from being scratched, or a foreign matter can be prevented from adhering thereto. Accordingly, the mirror surface state can be configured excellently in particular.

[Fourth embodiment]

[0075] Next, a fourth embodiment in the invention will be described with reference to Fig. 4. In this embodiment, the same components as the second embodiment are designated the same numerals and signs, and omitting the description for them. In the embodiment, a reflective polarizer 110, a polarizer 120, a retarder 130, a liquid crystal panel 140, a polarizer 150, a reflective polarizer 170, and a backlight 160 are disposed sequentially from the viewing side.

[0076] In the embodiment, the mirror area (polarized light selecting area) "B" occupied by the reflective polarizer 110 is configured to cover an area wider than the display area "A" (that is, the display area of the liquid crystal display formed of the polarizer 120, the liquid crystal panel 140 and the polarizer 150) of the display unit. More specifically, the mirror area "B" is configured to extend beyond the area two-dimensionally overlapping with the display area "A" for further extension.

[0077] For the liquid crystal panel 140, it is needed to provide the area bonded with a sealing material 143 and the area formed with input terminals (not shown in the drawing) on the outside the area around the display area "A." Consequently, a frame-like portion (so-called frame area) exists to some extent around the display area "A" as the display device 100. However, by covering this portion with the reflective polarizer 110, a wider mirror area can be formed without upsizing the display device.

[0078] In addition, the configuration of the fourth embodiment is applicable to any of the first embodiment to the third embodiment.

[Fifth embodiment]

[0079] Next, a more specific configuration of the first embodiment will be described as a fifth embodiment with reference to Fig. 5. In the embodiment, as shown in Fig. 5, a transparent plate 180 is disposed on the viewing side of a reflective polarizer 110. Then, the reflective polarizer 110 is closely contacted with the transparent plate 180. As the transparent plate 180, for example, a display window member (a display window exposed to outside) of the display part of an electronic device (described later) is named, for example. The transparent plate 180 can be formed of a transparent material such as acryl resin or glass. For example, the reflective polarizer 110 is bonded to the transparent plate 180 with a transparent adhesive 181. The surface on the backside of the transparent plate 180 (the under side in the drawing) is formed to be flat. Accordingly, the surface on the viewing side of the closely contacted reflective polarizer 110 is formed to be flat.

[0080] In the embodiment, a polarizer 120 and a retarder 130 are also directly or indirectly fixed to the transparent plate 180 along with the reflective polarizer 110. For example, the polarizer 120 is bonded to the reflective polarizer 110, and furthermore, the retarder 130 is bonded to the polarizer 120.

[0081] In the embodiment, a liquid crystal panel 140 and a backlight 160 are not fixed to the transparent plate 180 or to the polarizer 120 or the retarder 130 fixed thereto. In this case, the liquid crystal panel 140 can be fixed inside the device separately (for example, fixed on a circuit board) from the transparent plate 180, and a gap can be provided between the liquid crystal panel 140 and the multilayer structure fixed to the transparent plate 180. When this is done, the liquid crystal panel 140 is disposed inside the device separately from the multi-

layer structure including the reflective polarizer 110. Thus, product yields can be improved in the fabrication processes. Of course, the liquid crystal panel 140 and a polarizer 150 can also be fixed and integrated to the transparent plate 180.

[0082] Furthermore, the polarizer 150 is preferably bonded over the outer face of a substrate 141 on the backside of the liquid crystal panel 140. Moreover, the liquid crystal panel 140 and the backlight 160 are disposed with a gap in the drawing, but it is acceptable that they are closely contacted or bonded to each other. More specifically, it is acceptable that the polarizer 150 is closely contacted or bonded to the viewing side of a light guide plate 162.

[0083] The fixing structure to the transparent plate 180 can be applicable not only to the first embodiment but also to any of the second embodiment to the fourth embodiment in completely the same manner.

[Sixth embodiment]

[0084] Next, a sixth embodiment in the invention will be described with reference to Fig. 6. In this embodiment, a transparent plate 180 is disposed as similar to that in the fifth embodiment. Then, a reflective polarizer 110 is bonded to the transparent plate 180 by a transparent adhesive 181 such as acryl resin. The surface on the backside of the transparent plate 180 is formed to be flat, and the reflective polarizer 110 fixed to the surface exerts the same effect and advantage as the fifth embodiment. In this embodiment, a polarizer 120, a retarder 130, a liquid crystal panel 140 and a polarizer 150 are fixed to the transparent plate 180 along with the reflective polarizer 110.

[0085] In the embodiment, the transparent adhesive 181 is preferably formed to have a thickness of 0.3 mm or greater. Accordingly, the fixing structure of the transparent plate 180 to the liquid crystal panel 140 is allowed to have sufficient elasticity when the transparent plate 180 is fixed to a case of an electronic device. Therefore, the liquid crystal panel 140 can be protected against impact or the like.

[0086] In addition, the configuration of the embodiment is applicable to any of the first to fourth embodiments.

[Seventh embodiment]

[0087] Next, a seventh embodiment in the invention will be described with reference to Fig. 7. This embodiment depicts the configuration of the second embodiment more specifically. In the embodiment, a reflective polarizer 110 is closely contacted with a transparent plate 190. The reflective polarizer 110 is fixed to the transparent plate 190. Particularly, the reflective polarizer 110 is preferably bonded to the transparent plate 190 by a transparent adhesive 191 the same as that in the above described embodiments. The transparent

plate 190 can be formed of the same material as the transparent plate 180 shown in the first embodiment. The surface on the backside of the transparent plate 190 is formed to be flat, and the reflective polarizer 110 fixed to this surface exerts the same effect and advantage as the first embodiment. In addition, a polarizer 120 and a retarder 130 are closely contacted with the reflective polarizer 110. They are also preferably bonded to each other by an adhesive layer or an adhesive.

[0088] A polarizer 150 and a reflective polarizer 170 are fixed to a liquid crystal panel 140. The polarizer 150 and the reflective polarizer 170 are preferably bonded to each other by an adhesive layer or an adhesive.

[0089] In the transparent plate 190, at least a portion of the surface corresponding to the display area is a curved surface 190A in the surface on the viewing side. Accordingly, the transparent plate 190 has the same function as an optical lens, which allows the display screen formed of a display device 100 to be visibly recognized in an enlarged or reduced state. For example, the curved surface 190A is formed into a convex curve as shown in the drawing, and thus the display screen can be visibly recognized in the enlarged state. Therefore, letters can be enlarged to enhance visibility when the display area of the display device is small.

[0090] Also in this case, not only the reflective polarizer 110, but also the polarizer 120 and the retarder 130 can be fixed to the transparent plate 190. Moreover, the liquid crystal panel 140 and the polarizer 150 (the reflective polarizer 170 as well) can also be fixed to the transparent plate 190 as integrated parts as similar to the sixth embodiment. The configuration including the transparent plate 190 can of course be applicable to the first to fifth embodiments and the other embodiments shown below.

[Eighth embodiment]

[0091] Next, an eighth embodiment in the invention will be described with reference to Fig. 8. In this embodiment, a reflective polarizer 110 is closely contacted with the backside of a transparent plate 180 the same as that in the fifth embodiment. The reflective polarizer 110 is fixed to the transparent plate 180 by a transparent adhesive 181 similar to that in the fifth embodiment. In the embodiment, only the reflective polarizer 110 is fixed to the transparent plate 180. A polarizer 120, a retarder 130, a liquid crystal panel 140, a polarizer 150 and a backlight 160, which configure a display unit, are disposed with gap to the transparent plate 180 and the reflective polarizer 110.

[0092] In this embodiment, the display unit is fixed inside as similar to typical electronic devices, and the reflective polarizer 110 is fixed to the inner surface of the transparent plate 180 disposed on the viewing side of the display unit. Accordingly, it is configured completely the same as the electronic device incorporating a normal display unit, and the reflective polarizer 110 is only

fixed to the inner surface of the transparent plate 180. Thus, the embodiment in the invention can be realized. Therefore, it can be fabricated significantly simply at low costs.

[Ninth embodiment]

[0093] Next, a ninth embodiment in the invention will be described with reference to Figs. 9 and 10. In a display device 200 in this embodiment, a reflective polarizer 210, a polarizer 220 and a retarder 230 are sequentially disposed from the viewing side, as shown in Fig. 9. An electroluminescent panel (hereafter, it is simply called EL panel) 240, which is an electro-optical device equivalent to the display unit is disposed behind them. The reflective polarizer 210 and the polarizer 220 are completely the same as those in the other embodiments. In this embodiment, the retarder 230 is a quarter (1/4) wavelength plate.

[0094] In the EL panel 240, an electrode 242 configured of a transparent conductor such as ITO is formed on a substrate 241, and a light emitting element 244 is disposed on the electrode 242. Furthermore, a counter electrode 245 is formed on the light emitting element 244.

The counter electrode 245 is preferably configured as a reflecting electrode formed of aluminium or other metals. In the example shown in the drawing, an example is depicted in which the sash-like electrode 242 arranged side by side in plurals in a stripe shape and the sash-like counter electrode 245 similarly arranged side by side in the stripe shape are disposed orthogonal to each other (the electrode structure corresponding to the passive matrix drive system). However, the electrode structure is arbitrary, and it is acceptable to have a proper electrode structure required for display, such as the electrode structure corresponding to the active matrix drive system.

[0095] Fig. 10 depicts a more specific configuration of the EL panel 240. As shown in Fig. 10, the EL panel 240 of the embodiment can be configured to allow color display by forming light emitting elements 244R, 244G and 244B. These light emitting elements 244R, 244G and 244B are configured of a hole injection layer 244A, and a red light emitting layer 244r, a green light emitting layer 244g, or blue light emitting layer 244b.

[0096] As materials for the hole injection layer, phthalocyanine based compounds such as copper phthalocyanine, and aromatic amine based compounds are named. In addition, as materials for the light emitting layer, aromatic ring compounds such as distyrylbenzene derivatives (blue light emission), heterocyclic compounds such as organic fluorescent materials based on aluminium complex (Alq complex) of 8-hydroxyquinoline of metal complex, and compounds containing specific elements such as a mixed ligand complex, one kind of Alq complex derivatives that one of hydroxyquinolines is substituted to triphenyl silicanol (Si compound) for co-

ordination (blue green light emission) are named. As other light emission materials other than blue color, nitrobenzothiazole azo compounds of red color, europium complexes of red color, distyrylpyrazine of yellow color, and aromatic dimethyldiyne of green color are named.

[0097] In the embodiment, the light emitting element 244R is formed of the hole injection layer 244A, the red light emitting layer 244r and the blue light emitting layer 244b, and the blue light emitting layer 244b functions as a layer for securing flatness and an electron injection transport layer. In addition, the light emitting element 244G is formed of the hole injection layer 244A, the green light emitting layer 244g and the blue light emitting layer 244b, and the blue light emitting layer 244b functions as a layer for securing flatness and an electron injection transport layer. Furthermore, the light emitting element 244B is formed of the hole injection layer 244A and the blue light emitting layer 244b.

[0098] In the embodiment, a bank 243 is formed on the substrate 241 with insulating resin (such as acryl resin, epoxy resin and photosensitive polyimide), and each of the light emitting elements is formed in each pixel area partitioned by the bank 243. By adapting such a configuration, each of the light emitting elements can be formed by arranging liquid materials, liquefied by adding a solvent to each material, in each pixel area by liquid drop discharge and by drying and curing the arranged liquid materials.

[0099] In the embodiment, a predetermined voltage is applied between the electrode 242 and the counter electrode 245 of the EL panel 240 to allow the each light emitting elements to emit light. Accordingly, the light emitted from the each light emitting elements passes through the retarder 230, and then enters the polarizer 220. The polarized light component having the vibration plane in parallel to the transmitting polarization axis of the polarizer 220 is passed through, whereas the polarized light component having the vibration plane orthogonal to the transmitting polarization axis is absorbed. Moreover, the polarized light component having passed through the polarizer 220 enters the reflective polarizer 210, which is a first polarized light selecting unit. The reflective polarizer 210 is disposed so as to direct its transmitting polarization axis toward the same direction as that of the transmitting polarization axis of the polarizer 220. Therefore, the polarized light component having passed through the polarizer 220 travels through the reflective polarizer 210 as it is, and it is visibly recognized as the transmitted light "T" on the viewing side (the display mode).

[0100] On the other hand, when the outside light "O" enters the display device 200, the polarized light component having the vibration plane in parallel to the transmitting polarization axis of the reflective polarizer 210 passes through, but the polarized light component having the vibration plane orthogonal to the transmitting polarization axis is reflected. This reflected polarized light component "R" is unobservable when the display light

emitted from the EL panel 240 passes through the reflective polarizer 210 in the display mode, and a predetermined display image formed of the display light of the EL panel 240 is visibly recognized. However, when it is configured that the light emission from the EL panel 240 is stopped not to emit light from the backside of the reflective polarizer 210, the visible mode recognition by the external light reflection of the reflective polarizer 210 becomes dominant to visibly recognize the display screen as a mirror (the mirror mode).

[0101] In addition, among the outside light "O," the polarized light component having the vibration plane in parallel to the transmitting polarization axis of the reflective polarizer 210 passes through the reflective polarizer 210 and the polarizer 220 having the transmitting polarization axis in the same direction, and enters the retarder 230. In the retarder 230, this polarized light component travels a quarter (1/4) phase to be right-handed circular polarized light, for example, and enters the EL panel 240 to be reflected by the reflecting electrode 245. This reflected light is turned to be left-handed circular polarized light. Thus, it again passes thorough the retarder 230 to be the polarized light component having the vibration plane orthogonal to the transmitting polarization axes of the reflective polarizer 210 and the polarizer 220. Therefore, the polarized light component is absorbed by the polarizer 220 as it is, and is not released to the viewing side.

[0102] Accordingly, since polarized light components of the outside light "O", which are not the polarized light components that are reflected on the surface of the reflective polarizer 210, will not return to the viewing side, the amount of the observed outside light can be reduced in the display mode. Thus, the deterioration of visibility can be reduced, and the light reflected other than in the surface of the reflective polarizer can be eliminated in the mirror mode. Therefore, a viewable mirror state with no blur can be realized.

[Tenth embodiment]

[0103] Next, an embodiment of the display device with a preferable backlight applied to the first to fourth embodiments will be described. The configuration of this embodiment can adopt any configurations of the first to ninth embodiments. Fig. 11 is a graph illustrating the luminance of the backlight against the emission angle distribution. In the embodiment, a backlight is desired that has high intensity luminance in the range of small emission angle centering the direction of the normal of the display screen (emission angle = 0), and has low luminance in the range of large emission angle, which is remote from the direction of the normal, in order to enhance the visibility of the display image. The range of small emission angle is an emission angle ranging from zero (0) to forty (40) degrees, and the range of large emission angle is the range exceeding an emission angle of forty (40) degrees. In the example shown in the

drawing, a luminance of about 2000 [cd/m²] is obtained in the light of a zero degree emission angle, whereas the luminance is dropped to 20 to 30 [cd/m²] in the light of a fifty (50) degree emission angle.

[0104] As for the emission angle distribution of luminous light from the backlight (lighting unit) for the embodiment, it is configured to have much light amount in the range of small emission angle and to have less light amount in the range of large emission angle. Thus, the light amount of the transmitted light "T" entering the user's eye can be increased in the display mode. Therefore, a reduction in the visibility of the display screen due to the reflected light "R" can be further suppressed. In order to enhance the visibility of the display screen in the display mode and to suppress the light amount of the backlight to reduce power consumption, the light emission property of the backlight is preferably configured to have a luminance (light amount) of one fiftieth (1/50) or below of the luminance (light amount) in the direction of the normal for the range of large emission angle exceeding an emission angle of forty (40) degrees.

[0105] The emission angle distribution of luminous light of the backlight can be properly configured according to the shape of the light guide plate 162, the structure of the light reflection component or the light scattering component 163, and a filter or a scattering plate (diffuser) disposed separately.

[0106] The emission angle distribution of luminous light of the backlight is applicable to the emission angle distribution of display light in the EL panel 240 of the ninth embodiment as it is. More specifically, by configuring the emission angle distribution of display light of the EL panel 240 as that shown in Fig. 11, the display light can be configured to be visibly recognized efficiently with no increase in power consumption, and the visibility in the display mode can be enhanced regardless of the existence of the specular reflection light by the reflective polarizer.

[Eleventh embodiment]

[0107] Next, an electronic device 1000 of an eleventh embodiment in the invention will be described with reference to Figs. 12 and 13. This electronic device 1000 is provided with the display device 100 of the first embodiment. Fig. 12 is a schematic block diagram illustrating a display control system for the display device 100 to be disposed inside the electronic device 1000 in a form of combining with a function implementing unit. Fig. 13 is a schematic perspective view illustrating the exemplary configuration of the electronic device 1000 (a mobile phone).

[0108] The electronic device 1000 is provided with a display drive part 140X for driving the liquid crystal panel 140 disposed in the display device 100, a light control part 160X for controlling the backlight 160, and a control part 100X for controlling the display drive part 140X and

the light control part 160X. By the way, the configuration shows the display control system in a form of combining with the function implementing unit, and does not depict an actual circuit configuration or the packaging structure of circuit devices. Therefore, it is acceptable that all the parts are formed in the display device 100, or formed outside the display device 100, that is, formed inside the electronic device 1000 instead of the display device 100. Furthermore, it is acceptable that a portion is formed inside the display device 100, and other portions are formed inside the electronic device 1000 instead of the display device 100.

[0109] The display drive part 140X is for feeding drive voltage to drive each of a plurality of pixel areas formed in the liquid crystal drive area of the liquid crystal panel 140. For example, it synchronously feeds scan signals and data signals corresponding to the scan signals to a common terminal (scan line terminal) and a segment terminal (data line terminal) of the liquid crystal panel 140 in the multiplex drive system or the active drive system. Display data such as image data is sent to the display drive part 140X from the main circuit of the electronic device 1000 via the control part 100X.

[0110] The light control part 160X controls power supply to the backlight 160. For example, it switches the backlight 160 between the lit state and the unlit state.

[0111] The control part 100X controls the display drive part 140X and the light control part 160X, and performs control instruction to each part and data sending. For example, when the display device 100 is to be set in the display mode, the display drive part 140X drives the liquid crystal panel 140 to display, and the light control part 160X allows the backlight 160 in the lit state simultaneously. When the display device 100 is to be set in the mirror state, the display drive part 140X controls the liquid crystal panel 140, and the liquid crystal display including the liquid crystal panel 140 is set in the full blocked state (shutter closed state). Alternatively, the light control part 160X turns off the backlight 160 to be in the unlit state. Preferably, the liquid crystal display is in a fully blocked state and the backlight 160 is in the unlit state in the mirror state.

[0112] As shown in Fig. 13, the electronic device 1000 of the embodiment can be configured as a mobile phone having a main body part 1001 and a display part 1002. In this case, it is configured that the display device 100 is disposed inside the display part 1002 to visibly recognize a display screen 1003 in the display part 1002. By configuring in this way, a predetermined display screen can be visibly recognized in the display screen 1003, or the mirror surface state can be visibly recognized depending on various manual operations and various situations. Accordingly, the electronic device 1000 such as the mobile phone can be used as a mirror.

[0113] In addition, when the electronic device 1000 is applied to a mobile phone 2000, the configuration is acceptable in which another display screen 2004, other than the main display screen (the same one as 1003)

shown in Fig. 13, is disposed on the outer face of a display part 2002, folded over a main body part 2001 as shown in Fig. 14. And the display screen 2004 allows predetermined display to be visually recognized without opening the display part 2002 from the main body part 2001. In this case, the display device 100 is disposed in addition to the main display device depicted by dotted lines in Fig. 12, and thus the structure is formed in which the display screen 2004 can be visually recognized by the display device 100 other than the main display screen. In the mobile phone 2000 of the embodiment, display can be visually recognized in the folded state, and also it can be used as a mirror in the folded state.

[0114] In the embodiment, the electronic device 1000 and the mobile phone 2000 are preferably provided with an input part (control member) such as a control switch, a operation button, and a control dial for exclusively switching between the display mode (transmissive display mode) and the mirror mode, or for serving also as the input part for other functions. For example, it is configured that the control member for exclusive use or for dual purpose disposed on the main body part 1001 of the electronic device 1000 is manually operated and thus the operated state is sent to the control part 100X to switch between the display mode (transmissive display mode) and the mirror mode. Furthermore, the mobile phone 2000 is configured in which a control member, manually operable in the folded state shown in Fig. 14, is disposed and the control member is operated to send the operated state to the control part 100X for switching between the display mode (transmissive display mode) and the mirror mode. As for the dual purpose control member for forming the input part, for example, a data input key button and a power on/off button in various electronic devices such as a mobile phone and personal computer are named.

[0115] When the display device 200 having the EL panel 240 of the ninth embodiment is disposed inside the electronic device, the light control part is not needed. Instead, a control unit including functions of the control part and the display drive part can realize predetermined display states in the display mode and the mirror surface state in the mirror mode. In the mirror mode, the control unit stops light emission of the EL panel 240.

[0116] The display device and the electronic devices of the invention are not limited to the examples shown in the drawings, which can of course be modified variously within the scope of the invention. For example, in the embodiments, the case where the invention is applied to the liquid crystal device as one kind of electro-optical device, has been mainly described. However, the invention is not limited to this, but can be applied to various electro-optical devices such as the electroluminescent device as the ninth embodiment, particularly an organic electroluminescent device, an inorganic electroluminescent device, a plasma display device, an FED (field emission display) device, an LED (light emitting element) display device, an electrophoretic image dis-

play device, a small-sized TV using a low-profile CRT and a liquid-crystal shutter, and a device using a digital micromirror device (DMD).

[0117] As described above, according to the invention, display quality can be enhanced in the display device, which allows the display part to be switched between the display mode and the mirror mode. In addition, the display device can be formed to be low-profile and light-weight.

Claims

1. A display device comprising:

a display unit adapted to allow a first polarized light to be emitted as display light; and a control unit adapted to control the display unit,

wherein the display unit has a polarized light selecting unit on a viewing side thereof,

the polarized light selecting unit transmits the first polarized light and reflects a second polarized light having a polarization axis crossing a polarization axis of the first polarized light, and

the control unit is allowed to switch between a display mode, in which the first polarized light is emitted from the display unit as display light, and a mirror mode, in which the first polarized light is not emitted from the display unit.

2. The display device according to claim 1, wherein the control unit stops light emission from the display unit in the mirror mode.

3. A display device having a transmitting polarization axis varying unit, the display device including:

a first polarized light selecting unit disposed on a viewing side of the transmitting polarization axis varying unit; and
a second polarized light selecting unit disposed on a backside of the transmitting polarization axis varying unit,

wherein the first polarized light selecting unit transmits a first polarized light and reflects a second polarized light having a polarization axis crossing a polarization axis of the first polarized light,

the second polarized light selecting unit transmits a third polarized light and absorbs or reflects a fourth polarized light having a polarization axis crossing a polarization axis of the third polarized light, and

the transmitting polarization axis varying unit is allowed to convert at least a part of the third polarized light to the first polarized light.

4. The display device according to claim 3, wherein another transmitting polarization axis varying unit is not disposed on the viewing side of the first polarized light selecting unit. 5
5. The display device according to claim 3, wherein a third polarized light selecting unit adapted to transmit the first polarized light and to absorb the second polarized light is disposed between the first polarized light selecting unit and the transmitting polarization axis varying unit. 10
6. The display device according to claim 5 comprising:
 - a lighting device on the backside of the second polarized light selecting unit, 15
 - wherein the second polarized light selecting unit transmits the third polarized light and absorbs the fourth polarized light, 20
 - in which a fourth polarized light selecting unit is disposed between the second polarized light selecting unit and the lighting unit, and
 - the fourth polarized light selecting unit transmits the third polarized light and reflects the fourth polarized light. 25
 7. The display device according to claim 3, wherein the second polarized light selecting unit transmits the third polarized light and reflects the fourth polarized light. 30
 8. The display device according to claim 3, wherein a surface on the viewing side of the polarized light selecting unit is flat. 35
 9. The display device according to claim 3 or 8, wherein a transparent protective film is formed on a surface on the viewing side of the first polarized light selecting unit. 40
 10. The display device according to claim 3, wherein a lighting unit adapted to emit light to the viewing side is disposed on the backside of the second polarized light selecting unit. 45
 11. The display device according to claim 10, wherein a light reflection component for reflecting outside light to the viewing side in a form of supporting display is not disposed between the first polarized light selecting unit and the lighting unit. 50
 12. The display device according to claim 10 or 11, wherein the transmitting polarization axis varying unit is in a state not to emit the first polarized light when the lighting unit is not lit. 55
 13. The display device according to claim 3, wherein a polarized light selecting area of the first polarized light selecting unit is extended beyond an area overlapping with a transmitting polarization axis varying area of the transmitting polarization axis varying unit.
 14. The display device according to any one of claims 10 to 12, wherein a light amount emitted in a direction of the normal is greatest in an emission angle distribution of luminous light of the lighting unit.
 15. The display device according to claim 14, wherein the luminous light of the lighting unit is distributed mainly at an emission angle ranging from zero (0) to forty (40) degrees.
 16. The display device according to claim 14, wherein the luminous light of the lighting unit is one fiftieth (1/50) or below of a light amount in the direction of the normal for a range exceeding an emission angle of forty five (45) degrees.
 17. The display device according to claim 3, wherein a color filter is disposed on the backside of the first polarized light selecting unit.
 18. The display device according to claim 3, wherein a retarder is disposed between the first polarized light selecting unit and the transmitting polarization axis varying unit.
 19. The display device according to claim 3, wherein a transparent member is disposed on the viewing side of the first polarized light selecting unit, and the first polarized light selecting unit is directly or indirectly closely contacted with the transparent member.
 20. The display device according to claim 19, wherein the first polarized light selecting unit is bonded to the transparent member by a transparent substance.
 21. The display device according to claim 19 or 20, wherein a surface of the transparent member on the first polarized light selecting unit is flat.
 22. The display device according to claim 19 or 20, wherein a surface on the viewing side of the transparent member is a curved surface.
 23. An electronic device comprising the display device according to claim 1 or 2.
 24. An electronic device comprising:
 - the display device according to any one of claims 3 to 22; and

a display drive unit adapted to drive the transmitting polarization axis varying unit.

25. An electronic device comprising:

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the display device according to any one of claims 10 to 12, and 14 to 16;

a display drive unit adapted to drive the transmitting polarization axis varying unit; and

a lighting control unit adapted to control the lighting unit. 10

26. An electronic device comprising a display unit adapted to allow light emission,

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wherein the display unit has a polarized light selecting unit adapted to transmit a first polarized light and to reflect a second polarized light having a polarization axis crossing a polarization axis of the first polarized light on a viewing side thereof, and

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a transmissive display mode, in which the first polarized light is emitted from the polarized light selecting unit on the viewing side to allow the first polarized light to be observed on the viewing side, and a mirror mode, in which the first polarized light is not emitted from the polarized light selecting unit and the polarized light selecting unit is used as a mirror on the viewing side of display unit, are switchable. 25

27. The electronic device according to claim 26 further comprising an input part for allowing an operation of the display device or for allowing data input to display in the display device, 30

wherein the input part is operated to allow switching between the transmissive display mode and the mirror mode. 35

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FIG. 1

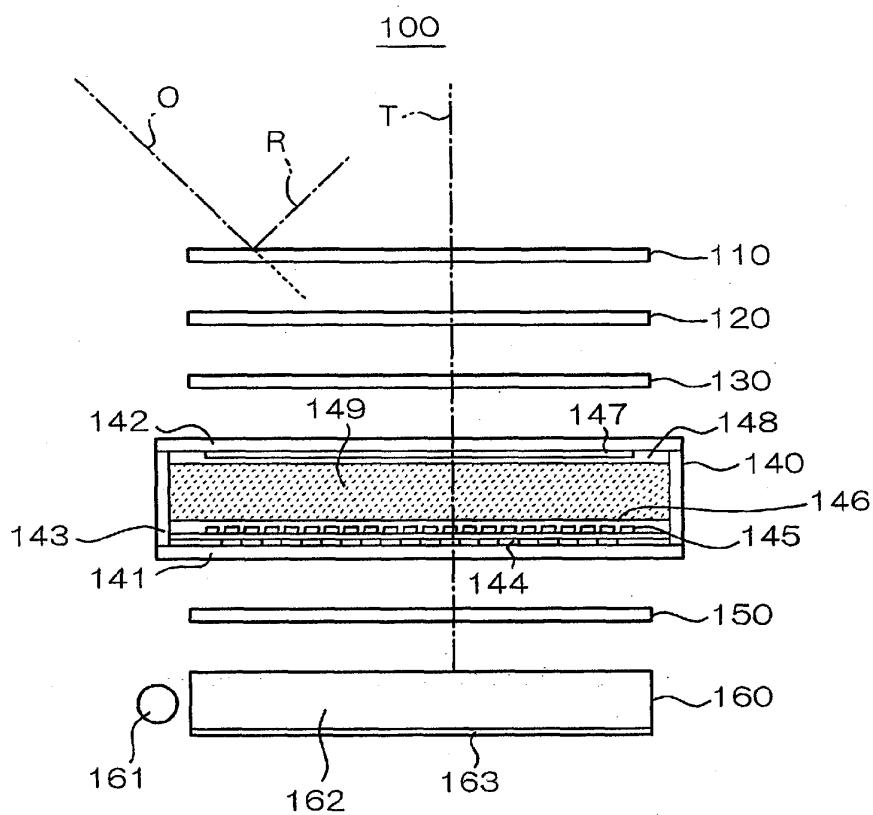


FIG. 2

100

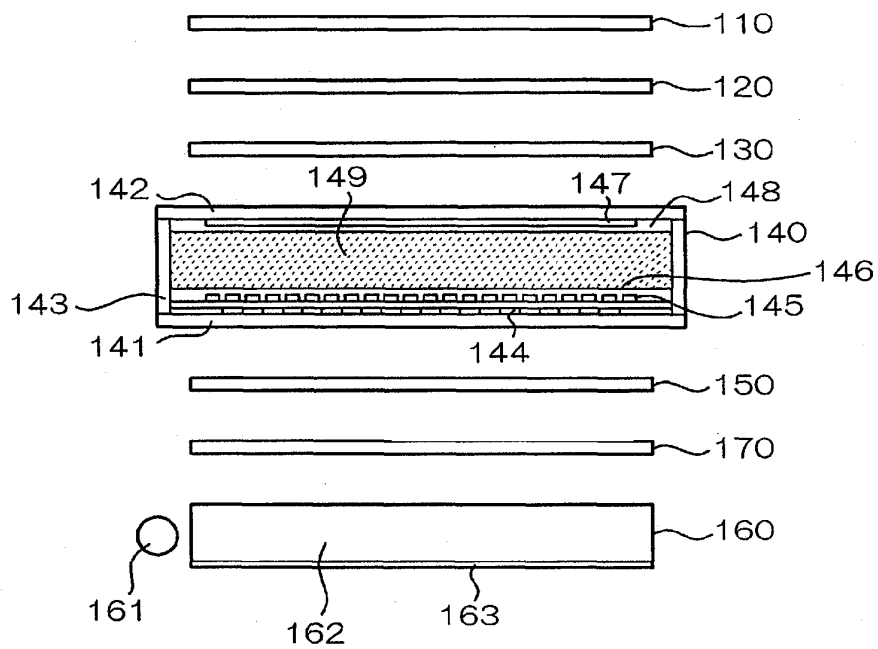


FIG. 3

100

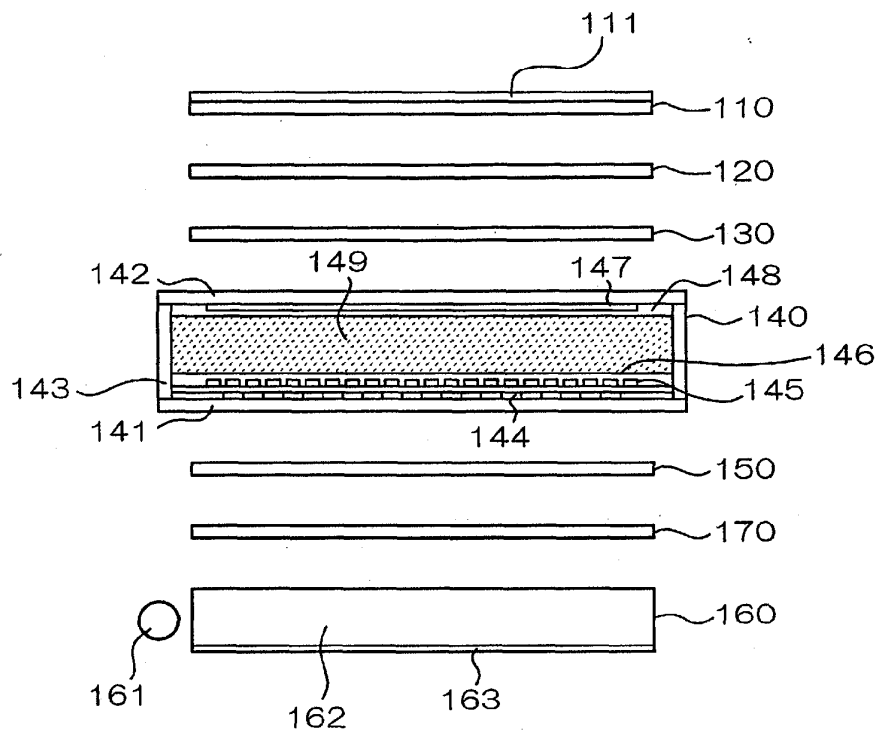


FIG. 4

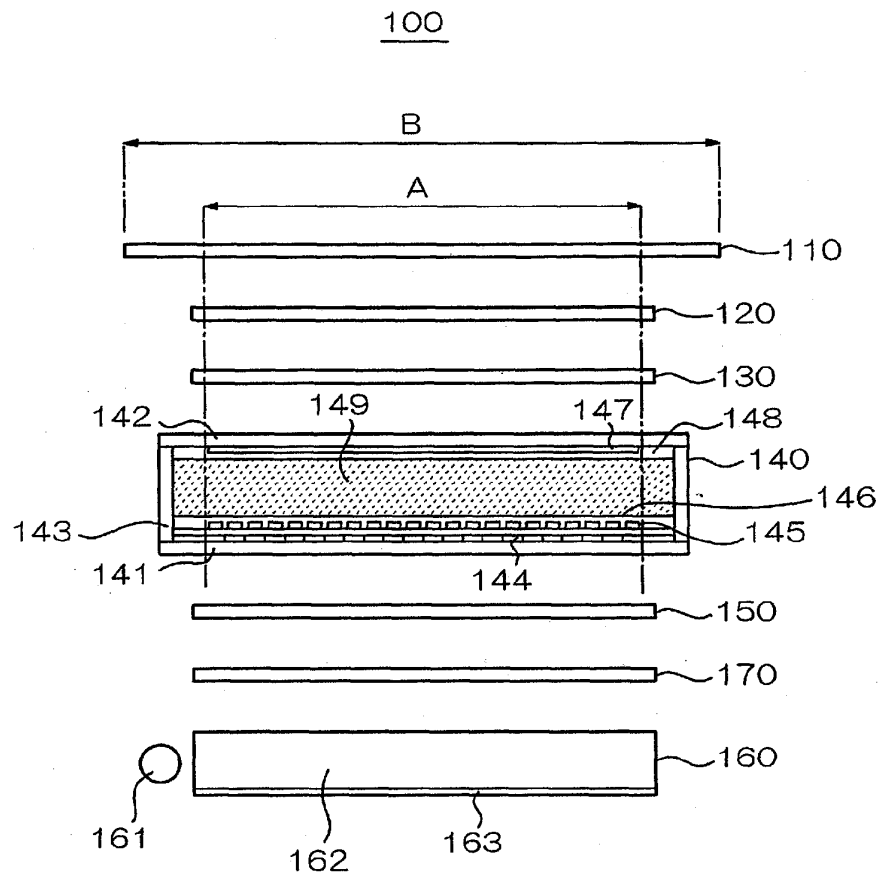


FIG. 5

100

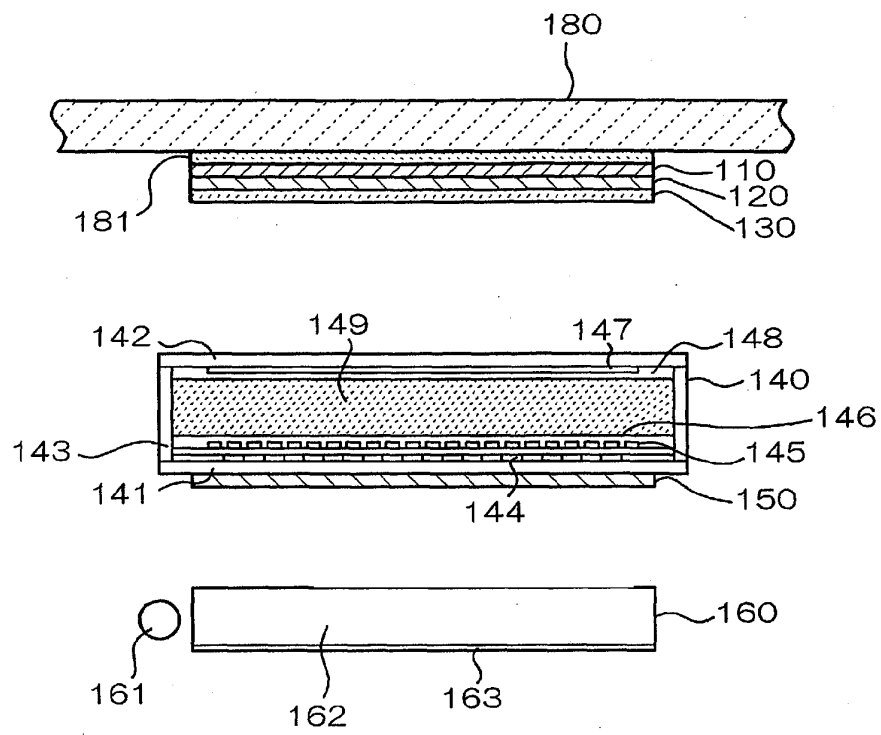


FIG. 6

100

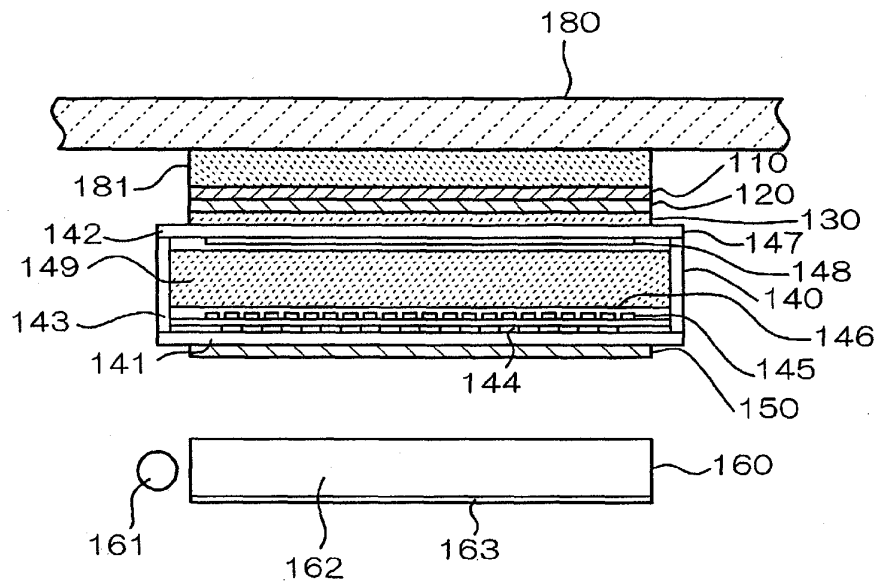


FIG. 7

100

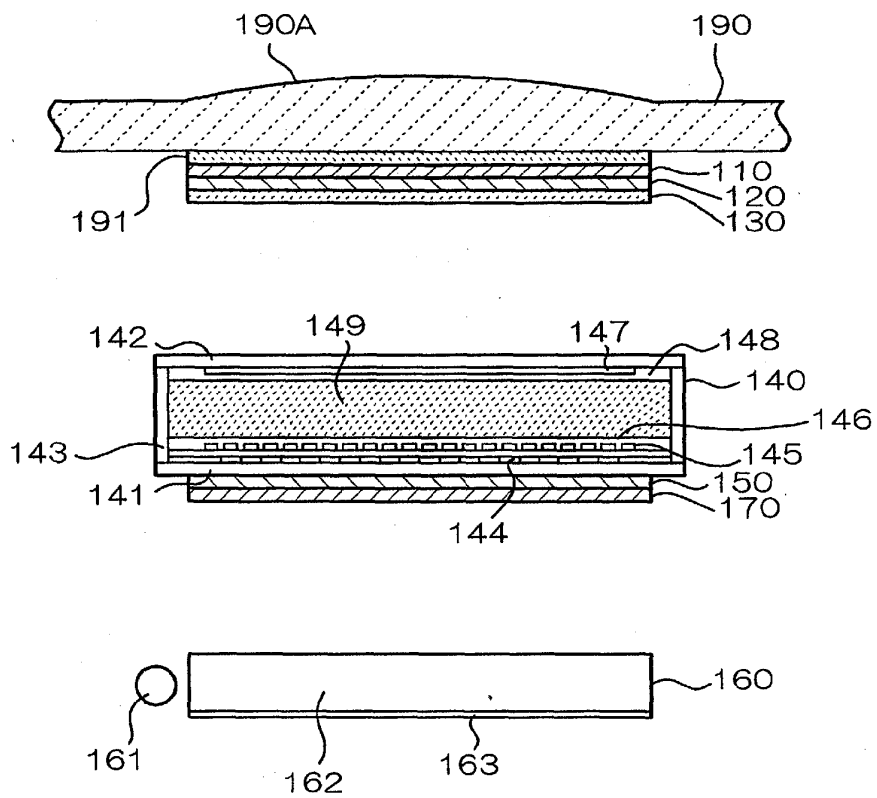


FIG. 8

100

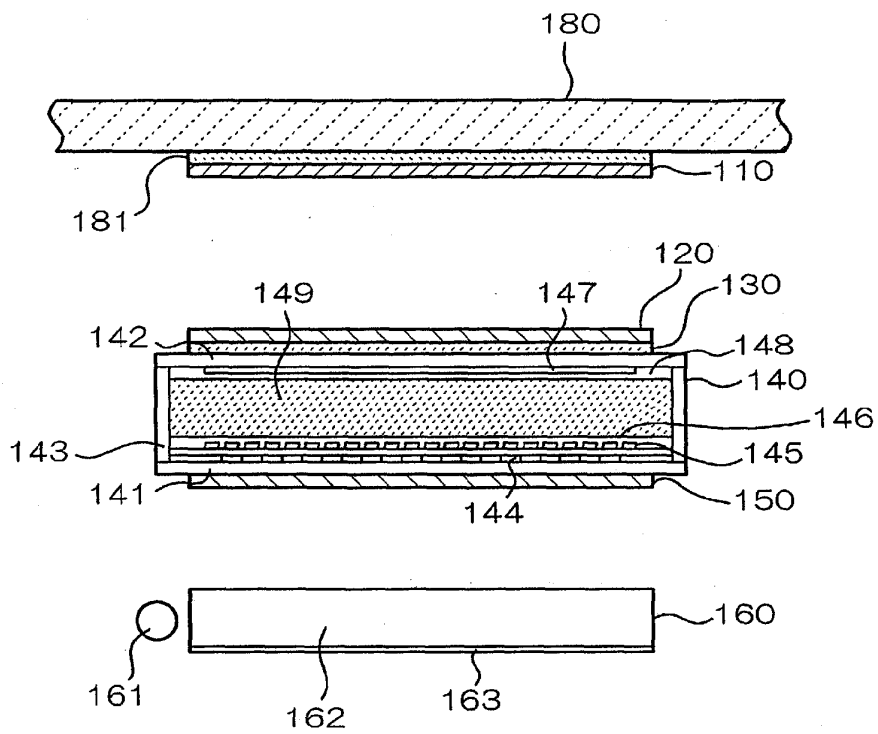


FIG. 9

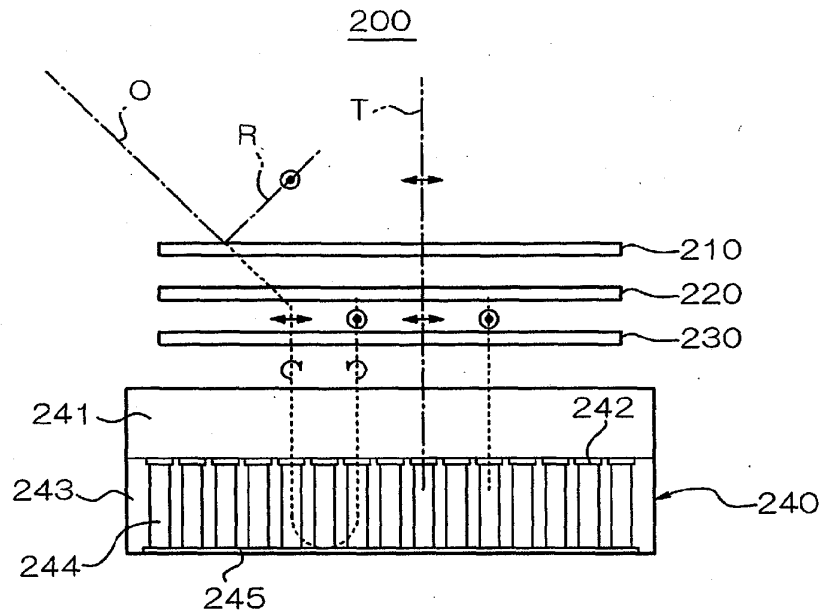


FIG. 10

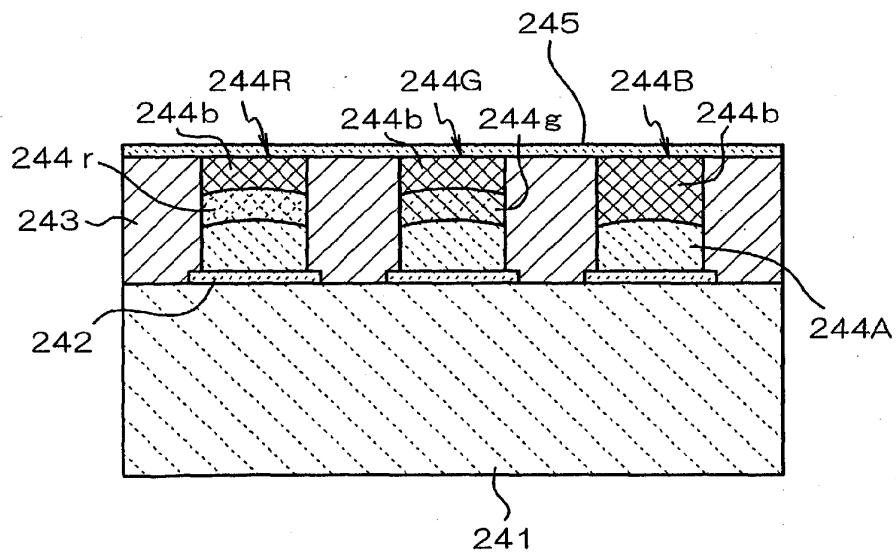


FIG. 11

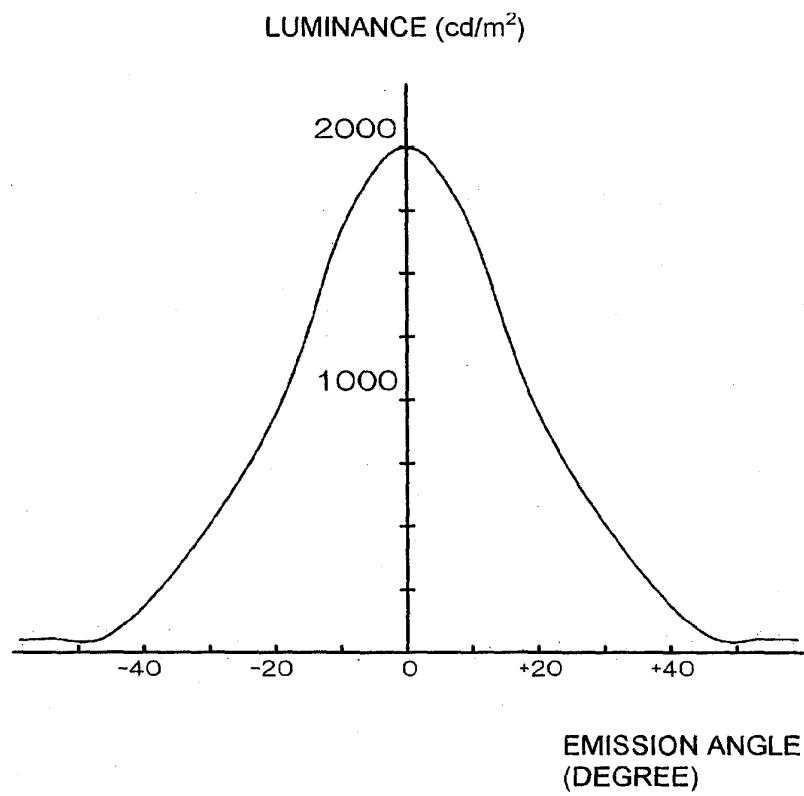


FIG. 12

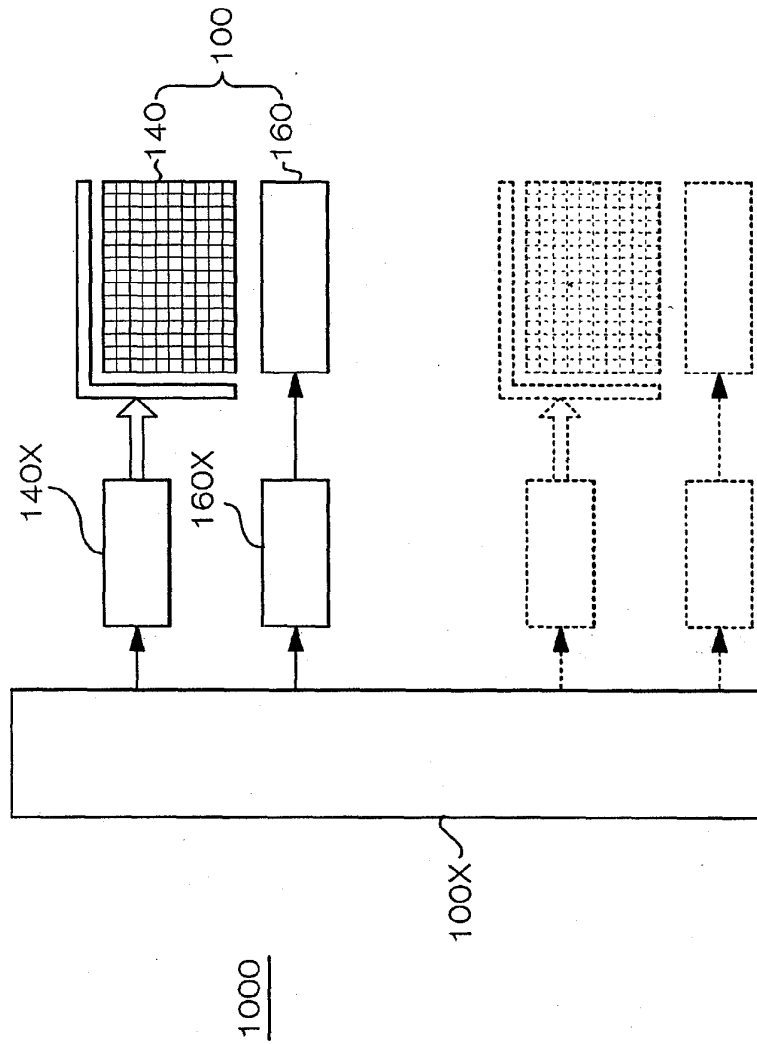


FIG. 13

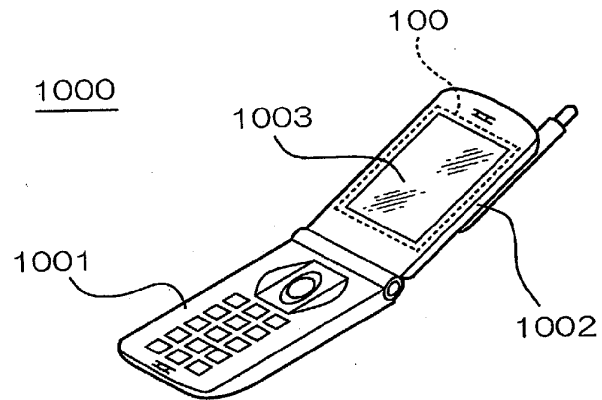
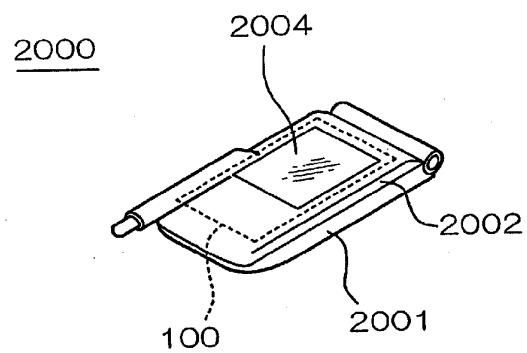


FIG. 14





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 25 3912

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	PATENT ABSTRACTS OF JAPAN vol. 2002, no. 03, 3 April 2002 (2002-04-03) -& JP 2001 318374 A (HITACHI LTD), 16 November 2001 (2001-11-16) * abstract * * paragraph [0008] - paragraph [0014] * * paragraph [0073] - paragraph [0134]; figures 7,8,10,11 * * paragraph [0278] - paragraph [0285]; figures 37,38 *	1-27	G02F1/1335 G02F1/13357 G09F13/12 H04M1/02 H04M1/21
X	EP 0 933 663 A (CITIZEN WATCH CO LTD) 4 August 1999 (1999-08-04) * paragraph [0052] - paragraph [0069]; figure 4 * * paragraph [0109] * -----	3,7-11, 14-21, 24,25	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			G02F H04M
The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 12 September 2003	Examiner Frank, W
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

EPO FORM 1503 03 02 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 25 3912

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-09-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2001318374	A	16-11-2001	JP 3419766 B2	23-06-2003
			WO 02069031 A1	06-09-2002
			JP 2003202565 A	18-07-2003

EP 0933663	A	04-08-1999	AU 8244598 A	10-02-1999
			BR 9806032 A	13-10-1999
			DE 69811201 D1	13-03-2003
			DE 69811201 T2	14-08-2003
			EP 0933663 A1	04-08-1999
			AU 8244498 A	10-02-1999
			BR 9806033 A	13-10-1999
			CN 1234878 T	10-11-1999
			CN 1115612 B	23-07-2003
			EP 0927917 A1	07-07-1999
			WO 9904322 A1	28-01-1999
			WO 9904315 A1	28-01-1999
			JP 3317504 B2	26-08-2002
			JP 3154498 B2	09-04-2001
			JP 2001201764 A	27-07-2001
			JP 2002328187 A	15-11-2002
			US 2002109808 A1	15-08-2002
			US 6580479 B1	17-06-2003

EPO FORM P/059

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

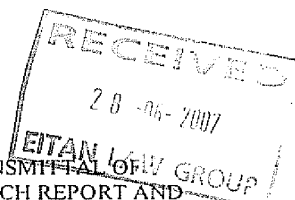
PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
EITAN LAW GROUP
11 HAMENOFIM ST
P.O. BOX 2081
HERZLIA, ISRAEL 46120

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION
(PCT Rule 44.1)



Date of mailing (day/month/year)	
Applicant's or agent's file reference P-7751-PC	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/IL06/00281	International filing date (day/month/year) 01 March 2006 (01.03.2006)
Applicant NISSI VILCOVSKY	

- 1 ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 338 82 70

For more detailed instructions, see the notes on the accompanying sheet

- 2 ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith

- 3 ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made

4 **Reminders**

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis 1 and 90bis 3, respectively, before the completion of the technical preparations for international publication

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P O Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer VIJAY SHANKAR Telephone No. 571-272-7682
---	---

Form PCT/ISA/220 (January 2004)

(See notes on accompanying sheet)

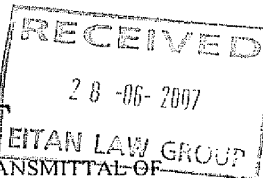
PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
EITAN LAW GROUP
11 HAMENOFIM ST
P.O. BOX 2081
HERZLIA, ISRAEL 46120

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION
(PCT Rule 44.1)



Applicant's or agent's file reference P-7751-PC	Date of mailing (day/month/year) 12 JUN 2007 FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No PCT/IL06/00281	International filing date (day/month/year) 01 March 2006 (01.03.2006)
Applicant NISSI VILCOVSKY	

1 ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No : (41-22) 338 82 70

For more detailed instructions, see the notes on the accompanying sheet

2 ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith

3 ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices

☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made

4 **Reminders**

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis 1 and 90bis 3, respectively, before the completion of the technical preparations for international publication

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, within **20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site

Name and mailing address of the ISA/ US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer VIJAY SHANKAR Telephone No. 571-272-7682
--	---

Form PCT/ISA/220 (January 2004)

(See notes on accompanying sheet)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P-7751-PC	FOR FURTHER ACTION		see Form PCT/ISA/220 as well as, where applicable, item 5 below
International application No PCT/IL 06/00281	International filing date (day/month/year) 01 March 2006 (01 03 2006)	(Earliest) Priority Date (day/month/year) 01 March 2005 (01 03 2005)	
Applicant NISSI VILCOVSKY			

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 2 sheets

☒

It is also accompanied by a copy of each prior art document cited in this report

1 Basis of the Report

a With regard to the language, the international search was carried out on the basis of:

☒

the international application in the language in which it was filed

☐

a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12 3(a) and 23 1(b))

b ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I

2 ☐ Certain claims were found unsearchable (See Box No. II)

3 ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

☒

the text is approved as submitted by the applicant.

☐

the text has been established by this Authority to read as follows:

5 With regard to the abstract,

☒

the text is approved as submitted by the applicant

☐

the text has been established, according to Rule 38 2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the drawings,

a the figure of the drawings to be published with the abstract is Figure No. 1

☒

as suggested by the applicant.

☐

as selected by this Authority, because the applicant failed to suggest a figure

☐

as selected by this Authority, because this figure better characterizes the invention

b ☐ none of the figures is to be published with the abstract

Form PCT/ISA/210 (first sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No

PCT/IL06/00281

A. CLASSIFICATION OF SUBJECT MATTER

IPC: G09G 5/00(2006 01),5/08(2006 01)

USPC: 345/156-162,204-215

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U S : 345/156-162, 204-215

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 20030085866 A1 (BIMBER et al) 08 May 2003, Figures 1-23; Paragraph 0063-0137	1-12

☐ Further documents are listed in the continuation of Box C.	☐ See patent family annex																				
* Special categories of cited documents: <table> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent published on or after the international filing date</td> <td>"X"</td> <td>document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</td> </tr> <tr> <td>"L"</td> <td>document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</td> <td>"Y"</td> <td>document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>		"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
"A"	document defining the general state of the art which is not considered to be of particular relevance	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention																		
"E"	earlier application or patent published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone																		
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art																		
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family																		
"P"	document published prior to the international filing date but later than the priority date claimed																				
Date of the actual completion of the international search 15 May 2007 (15.05.2007)	Date of mailing of the international search report 12 JUN 2007																				
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P O Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Authorized officer VIJAY SHANKAR Telephone No 571-272-7682																				

Form PCT/ISA/210 (second sheet) (April 2005)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
EITAN LAW GROUP
11 HAMENOFIM ST
P.O. BOX 2081
HERZLIA, ISRAEL 46120

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis 1)

Applicant's or agent's file reference P-7751-PC		Date of mailing (day/month/year) 12 JUN 2007 FOR FURTHER ACTION See paragraph 2 below	
International application No PCT/IL06/00281	International filing date (day/month/year) 01 March 2006 (01.03.2006)	Priority date (day/month/year) 01 March 2005 (01.03.2005)	
International Patent Classification (IPC) or both national classification and IPC IPC: G09G 5/00(2006 01),5/08(2006 01) USPC: 345/156-162,204-215			
Applicant NISSI VILCOVSKY			

1 This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|-------------|--|
| ☒ | Box No I | Basis of the opinion |
| ☐ | Box No II | Priority |
| ☐ | Box No III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| ☐ | Box No IV | Lack of unity of invention |
| ☒ | Box No V | Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| ☐ | Box No VI | Certain documents cited |
| ☐ | Box No VII | Certain defects in the international application |
| ☐ | Box No VIII | Certain observations on the international application |

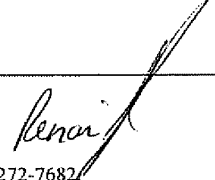
2 FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66 *1bis(b)* that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220

3 For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ US Mail Stop PCT. Attn: ISA/US Commissioner for Patents P O Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 15 May 2007 (15 05 2007)	Authorized officer VIJAY SHANKAR  Telephone No 571-272-7682
---	--	--

Form PCT/ISA/237 (cover sheet) (April 2005)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No

PCT/IL06/00281

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b format of material

- ☐ on paper
☐ in electronic form

c time of filing/furnishing

- ☐ contained in the international application as filed
☐ filed together with the international application in electronic form
☐ furnished subsequently to this Authority for the purposes of search

3 ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished

4 Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No
PCT/IL06/00281

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-12</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-12</u>	NO
Industrial applicability (IA)	Claims <u>1-12</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-12 lacks novelty under PCT Article 33(2) as being anticipated by Bimber et al (US 2003/0085866 A1)

Bimber et al teaches a system to enable appearance comparison, the system comprising: at least one interactive imaging and display station, the station comprising: a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode; an imaging device to capture one or more appearances from a field-of-view in front of said mirror-display device; and an image control unit to select the mode of operation of said mirror-display device according to a user command (Figures 1-23; Paragraph 0063-0137)

Bimber et al teaches a method to enable appearance comparison, the method comprising: using a mirror mode of operation of a mirror,display device capable of being selectably operated in either a mirror mode or a display mode; capturing an image corresponding to an appearance of a first trial from a field-of-view in front of said mirror-display device; storing said image; selecting the display mode of operation of said mirror-display device; retrieving said image and displaying the image on said mirror-display device (Figures 1-23; Paragraph 0063-0137)

From the INTERNATIONAL BUREAU

PCTNOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
PRELIMINARY REPORT ON PATENTABILITY
(CHAPTER I OF THE PATENT COOPERATION
TREATY)

(PCT Rule 44bis 1(c))

To:

EITAN LAW GROUP
11 Hamenofim Street
PO Box 2081
46120 Herzlia
ISRAËL

Date of mailing (<i>day/month/year</i>) 20 September 2007 (20.09.2007)		IMPORTANT NOTICE	
Applicant's or agent's file reference P-7751-PC			
International application No. PCT/IL2006/000281	International filing date (<i>day/month/year</i>) 01 March 2006 (01.03.2006)	Priority date (<i>day/month/year</i>) 01 March 2005 (01.03.2005)	
Applicant VILCOVSKY, Nissi			
The International Bureau transmits herewith a copy of the international preliminary report on patentability (Chapter I of the Patent Cooperation Treaty)			
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland		Authorized officer Simin Baharlou	
Facsimile No. +41 22 338 82 70		e-mail: pt09.pct@wipo.int	

Form PCT/IB/326 (January 2004)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference P-7751-PC	FOR FURTHER ACTION	See item 4 below
International application No PCT/IL2006/000281	International filing date (<i>day/month/year</i>) 01 March 2006 (01 03.2006)	Priority date (<i>day/month/year</i>) 01 March 2005 (01 03 2005)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant VILCOVSKY, Nissi		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis 1(a).																								
2.	This REPORT consists of a total of 4 sheets, including this cover sheet In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead																								
3.	This report contains indications relating to the following items: <table style="width: 100%; border: none;"> <tr> <td style="width: 10%; text-align: center;">☒</td> <td style="width: 30%;">Box No. I</td> <td style="width: 60%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;">☒</td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;">☐</td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	☒	Box No. I	Basis of the report	☐	Box No. II	Priority	☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	☐	Box No. IV	Lack of unity of invention	☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	☐	Box No. VI	Certain documents cited	☐	Box No. VII	Certain defects in the international application	☐	Box No. VIII	Certain observations on the international application
☒	Box No. I	Basis of the report																							
☐	Box No. II	Priority																							
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☐	Box No. VI	Certain documents cited																							
☐	Box No. VII	Certain defects in the international application																							
☐	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis 2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Date of issuance of this report 11 September 2007 (11.09 2007) Authorized officer Simin Baharlou e-mail: pt09.pct@wipo.int
--	---

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
EITAN LAW GROUP
11 HAMENOFIM ST.
P.O. BOX 2081
HERZLIA, ISRAEL 46120

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis 1)

Applicant's or agent's file reference P-7751-PC		Date of mailing (day/month/year) 12 JUN 2007
International application No. PCT/IL06/00281		FOR FURTHER ACTION See paragraph 2 below
International filing date (day/month/year) 01 March 2006 (01.03.2006)	Priority date (day/month/year) 01 March 2005 (01.03.2005)	
International Patent Classification (IPC) or both national classification and IPC IPC: G09G 5/00(2006.01),5/08(2006 01) USPC: 345/156-162,204-215		
Applicant NISSI VILCOVSKY		

1 This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

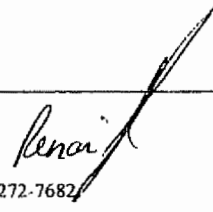
2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66 *1bis(b)* that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later

For further options, see Form PCT/ISA/220

3 For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	Date of completion of this opinion 15 May 2007 (15 05 2007)	Authorized officer VIJAY SHANKAR  Telephone No 571-272-7682
---	---	--

Form PCT/ISA/237 (cover sheet) (April 2005)

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IL06/00281

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

- ☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing
☐ table(s) related to the sequence listing

b. format of material

- ☐ on paper
☐ in electronic form

c. time of filing/furnishing

- ☐ contained in the international application as filed
☐ filed together with the international application in electronic form
☐ furnished subsequently to this Authority for the purposes of search

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished

4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No
PCT/IL.06/00281

Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims <u>NONE</u>	YES
	Claims <u>1-12</u>	NO
Inventive step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-12</u>	NO
Industrial applicability (IA)	Claims <u>1-12</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Claims 1-12 lacks novelty under PCT Article 33(2) as being anticipated by Bimber et al (US 2003/0085866 A1).

Bimber et al teaches a system to enable appearance comparison, the system comprising: at least one interactive imaging and display station, the station comprising: a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode; an imaging device to capture one or more appearances from a field-of-view in front of said mirror-display device; and an image control unit to select the mode of operation of said mirror-display device according to a user command (Figures 1-23; Paragraph 0063-0137)

Bimber et al teaches a method to enable appearance comparison, the method comprising: using a mirror mode of operation of a mirror,display device capable of being selectably operated in either a mirror mode or a display mode; capturing an image corresponding to an appearance of a first trial from a field-of-view in front of said mirror-display device; storing said image; selecting the display mode of operation of said mirror-display device; retrieving said image and displaying the image on said mirror-display device (Figures 1-23; Paragraph 0063-0137).

Electronic Acknowledgement Receipt	
EFS ID:	11537987
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	86530
Filer:	Naim Avraham Shichrur/Yael Rapoport
Filer Authorized By:	Naim Avraham Shichrur
Attorney Docket Number:	VIL-P-00092-US1C
Receipt Date:	04-DEC-2011
Filing Date:	17-APR-2011
Time Stamp:	11:30:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	VIL-P-00092-US1C-IDS-04DEC11.pdf	612986 93dbe559b981cbc40f280231669611ac25064496	no	5

Warnings:

Information:

2	Foreign Reference	FOREIGN1.pdf	410245	no	9
			c6c1901db678bbeceb8674962a2e08ff86d2d165		
Warnings:					
Information:					
3	Foreign Reference	FOREIGN2.pdf	153898	no	4
			cc7bd01956f79b6709cdec2429c7eaea2031dff		
Warnings:					
Information:					
4	Foreign Reference	FOREIGN3.pdf	1128349	no	30
			a36fb06e737148611e8a3f7cfb732a02e8ca12d9		
Warnings:					
Information:					
5	Foreign Reference	FOREIGN4.pdf	854468	no	10
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Warnings:					
Information:					
6	Foreign Reference	FOREIGN5.pdf	1629468	no	30
			0d1ba0b9589d4e14fb377b5d7e6d62e4dc0e61bf		
Warnings:					
Information:					
7	Non Patent Literature	NPL1.pdf	302995	no	7
			7542f0f5fb3f8815f5697ab2932da36f690c1a08		
Warnings:					
Information:					
8	Non Patent Literature	NPL2.pdf	1269401	no	8
			1fe014080c5c379bcb4b18542d57cab7ed8568c40		
Warnings:					
Information:					
9	Non Patent Literature	NPL3.pdf	173873	no	5
			4ebdf05e196994c290ebd0adf80ec864a8cf64df		
Warnings:					
Information:					
10	Non Patent Literature	NPL4.pdf	283265	no	9
			508d424e930328be4f0553dfa84f1982ebbb82d89		
Warnings:					
Information:					

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.



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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/088,369	04/17/2011	Nissi Vilcovsky	VIL-P-00092-US1C	8308
86530	7590	11/02/2012		
Shichrur & Co. Azrieli Business Center Triangle tower, 31st Floor Tel Aviv, 67011 ISRAEL			EXAMINER SHANKAR, VIJAY	
			ART UNIT 2697	PAPER NUMBER
			NOTIFICATION DATE 11/02/2012	DELIVERY MODE 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):

Patents@ShichrurLaw.com
Yael@ShichrurLaw.com

Office Action Summary	Application No.		Applicant(s)	
	13/088,369		VILCOVSKY, NISSI	
	Examiner		Art Unit	
	VIJAY SHANKAR		2697	

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 17 April 2011.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ 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.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5) ☒ Claim(s) 1-12 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-12 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
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)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>12/4/11</u> .	6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1) Claim 1, lines 3-4, the recitation “a mirror-display device capable of selectably operating in either or both a mirror mode or a display mode” is not clear.

It should be written as “a mirror-display device capable of selectably operating in either **mirror mode** or both **in** a mirror mode **and** a display mode”.

2) Claim 12, lines 2-3, the recitation “using a mirror mode of operation of a mirror-display device capable of being select ably operated in either a mirror mode or a display mode” is not clear.

It should be written as “using a mirror mode of operation of a mirror-display device capable of being select ably operated in either **mirror mode** or **both in** a mirror mode **and** a display mode”.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

4. Claims 1-12 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 7,948,481 B2. Although the conflicting claims are not identical, they are not patentably distinct from each other because Claim 12 of the instant invention and Claim 12 of U.S. Patent No. 7,948,481 are claiming very similar claim subject matters.

13/088,369

U.S. Patent No. 7,948,481

12. A method to enable appearance comparison, the method comprising:	12. A method to enable appearance comparison, the method comprising:
using a mirror mode of operation of a mirror-display device capable of being selectably operated in either a mirror mode or a display mode;	using a mirror mode of a mirror-display device having at least a mirror mode and a display mode;
capturing an image corresponding to an appearance of a first trial from a field-of-view in front of said mirror-display device;	capturing an image corresponding to an appearance from a field-of-view in front of said mirror-display device;
storing said image;	storing said image;
selecting the display mode of operation of said mirror-display device;	
retrieving said image and displaying the image on said mirror-display device.	retrieving said image; and operating the mirror-display device to display the image.

Claims 1-11 of the instant invention and Claims 1-11 of U.S. Patent No. 7,948,481 are rejected for same reasons as they are claiming similar claim subject matters.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIJAY SHANKAR whose telephone number is (571)272-7682. The examiner can normally be reached on M-F 7:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571) 272-7687. 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.

/VIJAY SHANKAR/
Primary Examiner, Art Unit 2697

Notice of References Cited	Application/Control No. 13/088,369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI	
	Examiner VIJAY SHANKAR	Art Unit 2697	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,948,481	05-2011	Vilcovsky, Nissi	345/204
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	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.

Receipt date: 12/04/2011

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

13088369 - GAU: 2697

Approved for use through 07/31/2012. 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		13088369	
	Filing Date		2011-04-17	
	First Named Inventor	Nissi Vilcovsky		
	Art Unit	2629		
	Examiner Name	HJERPE, RICHARD A		
	Attorney Docket Number	VIL-P-00092-US1C		

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	20030085866		2003-05-08	Bimber et al.		
	2	20060178902		2006-08-10	Vicars et al.		
	3	20090091710		2009-04-09	Huebner		
	4	20050018140		2005-01-27	Ishizaki et al.		
	5	20020196333		2002-12-26	Gorischek		
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FOREIGN PATENT DOCUMENTS							Remove

Receipt date: 12/04/2011 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13088369	13088369 - GAU: 2697
	Filing Date		2011-04-17	
	First Named Inventor	Nissi Vilcovsky		
	Art Unit	2629		
	Examiner Name	HJERPE, RICHARD A		
	Attorney Docket Number	VIL-P-00092-US1C		

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	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	1 372 092	EP	A1	2003-12-17	ACCENTURE GLOBAL SERVICES GMBH		☐
	2	100 31 965	DE	A1	2002-01-10	FLOEGEL, EBERHARD		☐
	3	00/22955	WO	A1	2000-04-27	FISCHER, ERIC		☐
	4	199 43 355	DE	A1	2001-03-15	BENESCH, MARKUS		☐
	5	1 376 207	EP	A1	2004-01-02	SEIKO EPSON CORP.		☐

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NON-PATENT LITERATURE DOCUMENTS

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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	Copy of International Search Report and Written Opinion for PCT/IL06/00281 mailed on June 12, 2007	☐
	2	Copy of European Search Report for EP 06711263.1 mailed on August 18, 2011	☐
	3	Copy of International Preliminary Report on Patentability for PCT/IL2006/000281 mailed on September 20, 2007	☐

Receipt date: 12/04/2011 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13088369	13088369 - GAU: 2697
	Filing Date		2011-04-17	
	First Named Inventor	Nissi Vilcovsky		
	Art Unit	2629		
	Examiner Name	HJERPE, RICHARD A		
	Attorney Docket Number	VIL-P-00092-US1C		

	4	Copy of Non-final Office Action for U.S. 11/817,411 mailed on July 21, 2010	☐
If you wish to add additional non-patent literature document citation information please click the Add button Add			
EXAMINER SIGNATURE			
Examiner Signature	/Vijay Shankar/		Date Considered 10/24/2012
*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.			

Receipt date: 12/04/2011 INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		13088369 13088369 - GAU: 2697
	Filing Date		2011-04-17
	First Named Inventor	Nissi Vilcovsky	
	Art Unit	2629	
	Examiner Name	HJERPE, RICHARD A	
	Attorney Docket Number	VIL-P-00092-US1C	

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	/Naim Shichrur/	Date (YYYY-MM-DD)	2011-12-04
Name/Print	Naim Shichrur	Registration Number	56248

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.**

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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.
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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. /V.S./



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BIB DATA SHEET

CONFIRMATION NO. 8308

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
13/088,369	04/17/2011	345	2697	VIL-P-00092-US1C		
APPLICANTS Nissi Vilcovsky, Tokyo, JAPAN; ** CONTINUING DATA ***** This application is a CON of 11/817,411 08/30/2007 PAT 7,948,481 which is a 371 of PCT/IL06/00281 03/01/2006 which claims benefit of 60/656,885 03/01/2005 and claims benefit of 60/656,884 03/01/2005 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 05/05/2011						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /VIJAY SHANKAR/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY JAPAN	SHEETS DRAWINGS 4	TOTAL CLAIMS 12	INDEPENDENT CLAIMS 2
ADDRESS Shichrur & Co. Azrieli Business Center Triangle tower, 31st Floor Tel Aviv, 67011 ISRAEL						
TITLE DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES						
FILING FEE RECEIVED 462	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

<i>Index of Claims</i> 	Application/Control No. 13088369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI
	Examiner VIJAY SHANKAR	Art Unit 2697

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	10/24/2012								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								

<i>Search Notes</i> 	Application/Control No. 13088369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI
	Examiner VIJAY SHANKAR	Art Unit 2697

SEARCHED			
Class	Subclass	Date	Examiner
345	204-215	10/24/2012	VS
348	333.01	10/24/2012	VS
434	395	10/24/2012	VS

SEARCH NOTES		
Search Notes	Date	Examiner
INVENTORS NAME SEARCH	10/24/2012	VS

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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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.

POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Application Number	13/088,369
	Filing Date	April 17, 2011
	First Named Inventor	Nissi Vilcovsky
	Title	DEVICES, SYSTEMS AND METHODS OF...
	Art Unit	2697
	Examiner Name	Vijay Shankar
	Attorney Docket Number	067055-001100

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

46188

OR

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Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

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City

State

Zip

Country

Telephone

Email

I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.

Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____

SIGNATURE of Applicant or Assignee of Record

Signature

Date

10 Nov 2012

Name

Nissi Vilcovsky

Telephone

+972-544-477-477

Title and Company

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 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.

Electronic Acknowledgement Receipt	
EFS ID:	14204255
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	86530
Filer:	Joseph Bach/Monica Moreno
Filer Authorized By:	Joseph Bach
Attorney Docket Number:	VIL-P-00092-US1C
Receipt Date:	12-NOV-2012
Filing Date:	17-APR-2011
Time Stamp:	15:22:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	067055_001100_POAssigned2.pdf	120978 f87be1b9a5b80bd99c4fa450d72266c1f85cf9e5	no	1

Warnings:

Information:

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.



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/088,369	04/17/2011	Nissi Vilcovsky	VIL-P-00092-US1C

CONFIRMATION NO. 8308

POWER OF ATTORNEY NOTICE



OC000000057669192

86530
Shichrur & Co.
Azrieli Business Center
Triangle tower, 31st Floor
Tel Aviv, 67011
ISRAEL

Date Mailed: 11/27/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/12/2012.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tnguyen/

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



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100

46188
Nixon Peabody LLP
P.O. Box 60610
Palo Alto, CA 94306

CONFIRMATION NO. 8308
POA ACCEPTANCE LETTER



Date Mailed: 11/27/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 11/12/2012.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/tnnguyen/

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

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 067055-001100
Nissi Vilcovsky	Confirmation No.: 8308
Appln. No.: 13/088,369	Group Art Unit: 2697
Filed: April 17, 2011	Examiner: Vijay Shankar
For: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES	

AMENDMENT AND RESPONSE TO OFFICE ACTION

MAIL STOP AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action dated November 2, 2012, please amend the above-identified application as follows on the accompanying pages.

TABLE OF CONTENTS

AMENDMENTS TO THE SPECIFICATION.....	2
AMENDMENTS TO THE CLAIMS	3
REMARKS	8

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0059] with the following amended paragraph:

[0059] According to some demonstrative embodiments of the invention, mirror-display device 140 may be partitioned into two frames, wherein one frame may operate as a mirror frame 192 ~~191~~ and another frame 191 ~~192~~ may operate selectably as a mirror and as a display frame. As shown in FIG. 2A, user 111 may pose in front of mirror frame 192 ~~191~~ a first trial, which may be captured by imaging device 130 and stored in storage device 123. Henceforward, as indicated in FIG. 2B, user 111 may view simultaneously in ~~mirror~~ frame 191 ~~192~~ the image of the user-appearance of the first trial and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (FIG. 1), side-by-side with the normal mirror appearance of a second trial in frame 192, and compare between the first and the second trial.

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended) A system to enable appearance comparison, the system comprising:
at least one interactive imaging and display station connected to a network, the station comprising:

a mirror-display device capable of selectably operating in ~~either or both~~ a mirror mode, ~~or~~ a display mode, or both a mirror and a display mode;

an imaging device to capture video of one or more appearances from a field-of-view in front of said mirror-display device;

a storage device to store the video; and

an image control unit to select the mode of operation of said mirror-display device according to a user command, and to display a mirrored image of the video retrieved from the storage device.

2. (Original) The system of claim 1, wherein said image control unit includes an input device to receive said user command from a user.

3. (Currently amended) The system of claim 1, wherein said image control unit includes an interface for downloading the video to a mobile storage device to store one or more images

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

~~corresponding to said one or more appearances.~~

4. (Original) The system of claim 1, wherein said mirror-display device is capable of being partitioned into at least first and second simultaneously-displayable frames, the first frame selectably operable both in a mirror mode and a display mode, and the second frame operable in a mirror mode.

5. (Original) The system of claim 1, wherein said imaging device is capable of capturing three-dimensional images of said appearances.

6. (Original) The system of claim 1, wherein said mirror-display device is capable of displaying images of appearances at predefined sequences.

7. (Original) The system of claim 1, wherein said image control unit is able to selectively enable a user to access images of appearances authorized to said user, based on user-identifying input received from said user.

8. (Currently amended) The system of claim 1, wherein said at least one interactive imaging and display station comprises two or more interactive imaging and display stations able to communicate over the a network.

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

9. (Original) The system of claim 8, wherein said two or more stations are able to communicate between each other data representing images of appearances.
10. (Currently amended) The system of claim 1, wherein said ~~image control unit is able to control said mirror display~~ mirror-display device is embedded in a semi-reflective mirror to display, during said display mode, one or more images corresponding to said appearances.
11. (Currently amended) The system of claim 1 ~~[[10]]~~, wherein the mirror-display device comprises a high definition television ~~one or more images comprise one or more mirrored appearances.~~
12. (Currently amended) A method to enable appearance comparison, the method comprising:
- using providing a ~~mirror mode of operation of a~~ mirror-display device capable of being selectably operated in either a mirror mode or a display mode;
 - capturing a video ~~an image corresponding to an appearance of a first trial~~ from a field-of-view in front of said mirror-display device;
 - storing said video image;
 - selecting the display mode of operation of said mirror-display device;
 - retrieving said video image and displaying a mirrored image of the video image on said mirror-display device.

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

13. (New) The method of claim 12, further comprising sending the video via a network interface to a control center.

14. (New) The method of claim 12, further comprising downloading the video onto a portable storage device.

15. (New) The method of claim 14, further comprising downloading discounts onto the portable storage device.

16. (New) The method of claim 12, further comprising verifying a user using face recognition.

17. (New) The method of claim 12, further comprising rendering virtual effects on the mirror-display device.

18. (New) The system of claim 1, wherein said imaging device comprises a camera for scanning a face and performing face recognition.

19. (New) The system of claim 1, further comprising a biometric input device.

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

20. (New) The system of claim 1, wherein said imaging device comprises a stereoscopic camera.

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

REMARKS

Claims 1-20 are all the claims pending in the application.

Claims 1-12 stand rejected for grammatical errors. The claims have been amended to correct the error.

Claims 1-12 stand rejected under the doctrine of non-statutory double patenting. Independent claims 1 and 12 have been amended to be directed at subject matter that is patentable over the corresponding claims in the previously issued patent 7,948,481.

Claims 13-20 have been added to more completely claim the disclosed invention.

Conclusion

Applicants hereby petition for any extension of time that may be necessary to keep this Application alive. The USPTO is directed and authorized to charge all required fees, including extension fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 50-3557. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

NIXON PEABODY LLP
P.O. Box 60610
Palo Alto, CA 94306
Telephone: (650) 320-7721

/Joseph Bach/
Joseph Bach
Registration No. 37,771

Date: December 21, 2012

Electronic Acknowledgement Receipt	
EFS ID:	14550995
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	46188
Filer:	Joseph Bach/Monica Moreno
Filer Authorized By:	Joseph Bach
Attorney Docket Number:	067055-001100
Receipt Date:	21-DEC-2012
Filing Date:	17-APR-2011
Time Stamp:	18:46:23
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		067055_001100_Amendment.pdf	102864 f654f2f4907b1df588cf2d9557ed7d672ba9f dlb2	yes	8

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Specification	2	2
	Claims	3	7
	Applicant Arguments/Remarks Made in an Amendment	8	8
Warnings:			
Information:			
Total Files Size (in bytes):		102864	
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.			

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 13/088,369		Filing Date 04/17/2011		☐ To be Mailed			
APPLICATION AS FILED – PART I												
(Column 1)			(Column 2)			SMALL ENTITY ☒ OR		OTHER THAN SMALL ENTITY				
FOR		NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)		RATE (\$)	FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A	N/A		N/A			N/A				
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A	N/A		N/A			N/A				
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A	N/A		N/A			N/A				
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =	*		X \$ =		OR	X \$ =				
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*		X \$ =			X \$ =				
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 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).										
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))												
* If the difference in column 1 is less than zero, enter "0" in column 2.												
APPLICATION AS AMENDED – PART II												
(Column 1)			(Column 2)			(Column 3)			SMALL ENTITY OR		OTHER THAN SMALL ENTITY	
AMENDMENT	12/21/2012	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	X \$31 =	0	OR	X \$ =			
	Independent (37 CFR 1.16(h))	* 2	Minus	*** 3	= 0	X \$125 =	0	OR	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))											
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))											
	TOTAL ADD'L FEE 0											
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)		
	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))											
	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 number found in the appropriate box in column 1.												

Legal Instrument Examiner:
/SANDRA TUCKER SMITH/

This collection of information is required by 37 CFR 1.16. 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 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. 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.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100	8308
46188	7590	04/09/2013	EXAMINER	
Nixon Peabody LLP P.O. Box 60610 Palo Alto, CA 94306			SHANKAR, VIJAY	
			ART UNIT	PAPER NUMBER
			2697	
			NOTIFICATION DATE	DELIVERY MODE
			04/09/2013	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):

patentsv@nixonpeabody.com
ocastanon@nixonpeabody.com

Office Action Summary	Application No. 13/088,369	Applicant(s) VILCOVSKY, NISSI	
	Examiner VIJAY SHANKAR	Art Unit 2697	AIA (First Inventor to File) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2012.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ 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.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 1-20 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, 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.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

- 12) ☐ 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)).

* See the attached detailed Office action for a list of the certified copies not received.

Interim copies:

- a) ☐ All b) ☐ Some c) ☐ None of the: Interim copies of the priority documents have been received.

Attachment(s)

- | | |
|---|---|
| 1) ☐ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413) |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08) | Paper No(s)/Mail Date. ____. |
| Paper No(s)/Mail Date ____. | 4) ☐ Other: ____. |

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 7,948,481 B2.

Although the conflicting claims are not identical, they are not patentably distinct from each other because Claim 12 of the instant invention and Claim 12 of U.S. Patent No. 7,948,481 are claiming very similar claim subject matters.

13/088,369

U.S. Patent No. 7,948,481

12. A method to enable appearance comparison, the method comprising:	12. A method to enable appearance comparison, the method comprising:
providing a mirror-display device capable of being selectably operated in either a mirror mode or a display mode;	using a mirror mode of a mirror-display device having at least a mirror mode and a display mode;
capturing a video from a field-of-view in front of said mirror-display device;	capturing an image corresponding to an appearance from a field-of-view in front of said mirror-display device;
storing said video;	storing said image;
selecting the display mode of operation of said mirror-display device;	
retrieving said video and displaying a mirrored image of the video on said mirror-display device.	retrieving said image; and operating the mirror-display device to display the image.

Claims 1-11 and 13-20 of the instant invention and Claims 1-11 and 13-18 of U.S. Patent No. 7,948,481 are rejected for same reasons as they are claiming similar claim subject matters.

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIJAY SHANKAR whose telephone number is (571)272-7682. The examiner can normally be reached on M-F 7:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571) 272-7687. 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.

/VIJAY SHANKAR/
Primary Examiner, Art Unit 2697

Search Notes 	Application/Control No. 13088369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI
	Examiner VIJAY SHANKAR	Art Unit 2697

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
345	204-215	4/3/2013	VS
348	333.01	4/3/2013	VS
434	395	4/3/2013	VS

SEARCH NOTES		
Search Notes	Date	Examiner
INVENTORS NAME SEARCH	4/3/2013	VS

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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04/03/2013

Attorney Docket No. 067055-001100

AMENDMENT AND RESPONSE TO OFFICE ACTION
U.S. Application No. 13/088,369

AMENDMENTS TO THE SPECIFICATION

Please replace paragraph [0059] with the following amended paragraph:

[0059] According to some demonstrative embodiments of the invention, mirror-display device 140 may be partitioned into two frames, wherein one frame may operate as a mirror frame 192 ~~191~~ and another frame 191 ~~192~~ may operate selectably as a mirror and as a display frame. As shown in FIG. 2A, user 111 may pose in front of mirror frame 192 ~~191~~ a first trial, which may be captured by imaging device 130 and stored in storage device 123. Henceforward, as indicated in FIG. 2B, user 111 may view simultaneously in ~~mirror~~ frame 191 ~~192~~ the image of the user-appearance of the first trial and/or any other user-appearances, e.g., user-appearances stored in storage device 123 and/or received over network 150 (FIG. 1), side-by-side with the normal mirror appearance of a second trial in frame 192, and compare between the first and the second trial.

<i>Index of Claims</i> 	Application/Control No. 13088369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI
	Examiner VIJAY SHANKAR	Art Unit 2697

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

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

CLAIM		DATE									
Final	Original	10/24/2012	04/03/2013								
	1	✓	✓								
	2	✓	✓								
	3	✓	✓								
	4	✓	✓								
	5	✓	✓								
	6	✓	✓								
	7	✓	✓								
	8	✓	✓								
	9	✓	✓								
	10	✓	✓								
	11	✓	✓								
	12	✓	✓								
	13		✓								
	14		✓								
	15		✓								
	16		✓								
	17		✓								
	18		✓								
	19		✓								
	20		✓								

TERMINAL DISCLAIMER TO OBTAIN A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 067055-001100
In re Application of: Nissi Vilcovsky Application No.: 13/088,369 Filed: April 17, 2011 For: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES The applicant, <u>Nissi Vilcovsky</u>, owner of <u>100</u> percent interest 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 No. <u>7,948,481</u> as the term of said prior patent is presently shortened by any terminal disclaimer. The applicant hereby agrees that any patent so granted on the instant application shall be enforceable only for any 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 applicant 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. Check either box 1 or 2 below, if appropriate. 1. ☐ The undersigned is the applicant. If the applicant is an assignee, the undersigned is authorized to act on behalf of the assignee. I hereby acknowledge that any willful false statements made are punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both. 2. ☒ The undersigned is an attorney or agent of record. Reg. No. <u>37,771</u> <u>/Joseph Bach/</u> Signature <u>August 2, 2013</u> Date <u>Joseph Bach</u> Typed or printed name <u>Attorney of Record</u> Title <u>(650) 320-7700</u> Telephone Number ☒ Terminal disclaimer fee under 37 CFR 1.20(d) included. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.	

This collection of information is required by 37 CFR 1.321. 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. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 067055-001100
Nissi Vilcovsky	Confirmation No.: 8308
Appln. No.: 13/088,369	Group Art Unit: 2697
Filed: April 17, 2011	Examiner: Vijay Shankar
For: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES	

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

MAIL STOP AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Final Office Action dated April 9, 2013, please amend the above-identified application as follows on the accompanying pages.

TABLE OF CONTENTS

AMENDMENTS TO THE CLAIMS	2
REMARKS	6

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION
U.S. Application No. 13/088,369

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Previously presented) A system to enable appearance comparison, the system comprising:
 - at least one interactive imaging and display station connected to a network, the station comprising:
 - a mirror-display device capable of selectably operating in mirror mode, a display mode, or both a mirror and a display mode;
 - an imaging device to capture video of one or more appearances from a field-of-view in front of said mirror-display device;
 - a storage device to store the video; and
 - an image control unit to select the mode of operation of said mirror-display device according to a user command, and to display a mirrored image of the video retrieved from the storage device.
2. (Original) The system of claim 1, wherein said image control unit includes an input device to receive said user command from a user.
3. (Previously presented) The system of claim 1, wherein said image control unit includes

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION
U.S. Application No. 13/088,369

an interface for downloading the video to a mobile storage device.

4. (Original) The system of claim 1, wherein said mirror-display device is capable of being partitioned into at least first and second simultaneously-displayable frames, the first frame selectably operable both in a mirror mode and a display mode, and the second frame operable in a mirror mode.

5. (Original) The system of claim 1, wherein said imaging device is capable of capturing three-dimensional images of said appearances.

6. (Original) The system of claim 1, wherein said mirror-display device is capable of displaying images of appearances at predefined sequences.

7. (Original) The system of claim 1, wherein said image control unit is able to selectively enable a user to access images of appearances authorized to said user, based on user-identifying input received from said user.

8. (Previously presented) The system of claim 1, wherein said at least one interactive imaging and display station comprises two or more interactive imaging and display stations able to communicate over the network.

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

U.S. Application No. 13/088,369

9. (Original) The system of claim 8, wherein said two or more stations are able to communicate between each other data representing images of appearances.
10. (Previously presented) The system of claim 1, wherein said mirror-display device is embedded in a semi-reflective mirror.
11. (Previously presented) The system of claim 1, wherein the mirror-display device comprises a high definition television.
12. (Previously presented) A method to enable appearance comparison, the method comprising:
- providing a mirror-display device capable of being selectably operated in either a mirror mode or a display mode;
 - capturing a video from a field-of-view in front of said mirror-display device;
 - storing said video;
 - selecting the display mode of operation of said mirror-display device;
 - retrieving said video and displaying a mirrored image of the video on said mirror-display device.
13. (Previously presented) The method of claim 12, further comprising sending the video via a network interface to a control center.

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

U.S. Application No. 13/088,369

14. (Previously presented) The method of claim 12, further comprising downloading the video onto a portable storage device.

15. (Previously presented) The method of claim 14, further comprising downloading discounts onto the portable storage device.

16. (Previously presented) The method of claim 12, further comprising verifying a user using face recognition.

17. (Previously presented) The method of claim 12, further comprising rendering virtual effects on the mirror-display device.

18. (Previously presented) The system of claim 1, wherein said imaging device comprises a camera for scanning a face and performing face recognition.

19. (Previously presented) The system of claim 1, further comprising a biometric input device.

20. (Previously presented) The system of claim 1, wherein said imaging device comprises a stereoscopic camera.

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION
U.S. Application No. 13/088,369

REMARKS

Claims 1-20 are all the claims pending in the application.

Claims 1-20 stand rejected under the doctrine of non-statutory double-patenting over U.S. patent 7,948,481. A terminal disclaimer is submitted herewith to overcome this rejection.

Conclusion

Applicants hereby petition for any extension of time that may be necessary to keep this Application alive. The USPTO is directed and authorized to charge all required fees, including extension fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 50-3557. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

NIXON PEABODY LLP
P.O. Box 60610
Palo Alto, CA 94306
Telephone: (650) 320-7721

/Joseph Bach/
Joseph Bach
Registration No. 37,771

Date: August 2, 2013

Electronic Patent Application Fee Transmittal				
Application Number:		13088369		
Filing Date:		17-Apr-2011		
Title of Invention:		DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES		
First Named Inventor/Applicant Name:		Nissi Vilcovsky		
Filer:		Joseph Bach/Monica Moreno		
Attorney Docket Number:		067055-001100		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
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:				
Extension - 1 month with \$0 paid	2251	1	100	100

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Statutory or Terminal Disclaimer	1814	1	160	160
Total in USD (\$)				260

Electronic Acknowledgement Receipt	
EFS ID:	16489667
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	46188
Filer:	Joseph Bach/Monica Moreno
Filer Authorized By:	Joseph Bach
Attorney Docket Number:	067055-001100
Receipt Date:	02-AUG-2013
Filing Date:	17-APR-2011
Time Stamp:	15:23:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$260
RAM confirmation Number	1892
Deposit Account	503557
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Terminal Disclaimer Filed	067055_001100_TerminalDisclaimer.pdf	147757 20d99ddfb117baa4b5320b5ecbd08ea3d8e3cbfc	no	2
Warnings:					
Information:					
2		067055_001100_Amendment.pdf	95554 35fdcc40a8c3aa84f0082b8ca305ced0e1dcfb69	yes	6
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Claims		1	5	
	Applicant Arguments/Remarks Made in an Amendment		6	6	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	32430 48fbb33c85f5a29d10b26955e1d8592e9d90718d	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			275741		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/088,369		Filing Date 04/17/2011		☐ To be Mailed					
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO													
APPLICATION AS FILED – PART I													
(Column 1)		(Column 2)											
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A							
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A							
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A							
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =							
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =							
☐ 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).											
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))													
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL							
APPLICATION AS AMENDED – PART II													
(Column 1)		(Column 2)		(Column 3)									
AMENDMENT	08/02/2013		CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		* 20		Minus	** 20		= 0		X \$40 =		0	
	Independent (37 CFR 1.16(h))		* 2		Minus	***3		= 0		X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
TOTAL ADD'L FEE						0							
(Column 1)		(Column 2)		(Column 3)									
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT			HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		*		Minus	**		=		X \$ =			
	Independent (37 CFR 1.16(h))		*		Minus	***		=		X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
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 number found in the appropriate box in column 1.													

This collection of information is required by 37 CFR 1.16. 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 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. 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.

Application Number 	Application/Control No. 13/088,369	Applicant(s)/Patent under Reexamination VILCOVSKY, NISSI	
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Document Code - DISQ	Internal Document – DO NOT MAIL
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TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : August 2, 2013	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

Henry D. Jefferson



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

46188 7590 09/03/2013
Nixon Peabody LLP
P.O. Box 60610
Palo Alto, CA 94306

EXAMINER

SHANKAR, VIJAY

ART UNIT

PAPER NUMBER

2697

DATE MAILED: 09/03/2013

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100	8308

TITLE OF INVENTION: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$890	\$300	\$0	\$1190	12/03/2013

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: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or **Fax (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)

46188 7590 09/03/2013
Nixon Peabody LLP
P.O. Box 60610
Palo Alto, CA 94306

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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100	8308

TITLE OF INVENTION: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$890	\$300	\$0	\$1190	12/03/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
SHANKAR, VIJAY	2697	345-204000

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 03-02 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, 1 _____
- (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. 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 has been filed for recordation as set forth in 37 CFR 3.11. 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. The following fee(s) are submitted:

- ☐ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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 form 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: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

This collection of information 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 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, 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.

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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.
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100	8308
46188	7590	09/03/2013	EXAMINER	
Nixon Peabody LLP			SHANKAR, VIJAY	
P.O. Box 60610			ART UNIT	
Palo Alto, CA 94306			PAPER NUMBER	

2697

DATE MAILED: 09/03/2013

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

The Patent Term Adjustment to date is 114 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 114 day(s).

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 Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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. 13/088,369	Applicant(s) VILCOVSKY, NISSI	
	Examiner VIJAY SHANKAR	Art Unit 2697	AIA (First Inventor to File) 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 Terminal Disclaimer filed on 8/2/13.
☐ 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: _____.

Interim copies:

a) ☐ All b) ☐ Some c) ☐ None of the: Interim copies of the priority documents have been 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)	5. ☐ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	6. ☒ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	7. ☐ Other _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____.	

/VIJAY SHANKAR/ Primary Examiner, Art Unit 2697	
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DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 8/2/13 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 7,948,481 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

2. Claims 1-20 are allowed.

3. The following is an examiner's statement of reasons for allowance: The Terminal Disclaimer filed on 8/2/13 overcomes the Double Patenting Rejection and the prior arts fails to teach a system to enable appearance comparison, the system comprising: at least one interactive imaging and display station connected to a network, the station comprising: a mirror-display device capable of selectably operating in mirror mode, a display mode, or both a mirror and a display mode; an imaging device to capture video of one or more appearances from a field-of-view in front of said mirror-display device; a storage device to store the video; and an image control unit to select the mode of operation of said mirror-display device according to a user command, and to display a mirrored image of the video retrieved from the storage device as claimed in Claim 1.

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."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIJAY SHANKAR whose telephone number is (571)272-7682. The examiner can normally be reached on M-F 7:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexander Eisen can be reached on (571) 272-7687. 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.

/VIJAY SHANKAR/
Primary Examiner, Art Unit 2697

Search Notes 	Application/Control No. 13088369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI
	Examiner VIJAY SHANKAR	Art Unit 2697

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
345	204-215	8/23/2013	VS
348	333.01	8/23/2013	VS
434	395	8/23/2013	VS

SEARCH NOTES		
Search Notes	Date	Examiner
INVENTORS NAME SEARCH	8/23/2013	VS

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
SAME	AS SEARCH	8/23/2013	VS

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OK TO ENTER: /V.S./

08/23/2013

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Docket No: 067055-001100
Nissi Vilcovsky	Confirmation No.: 8308
Appln. No.: 13/088,369	Group Art Unit: 2697
Filed: April 17, 2011	Examiner: Vijay Shankar
For: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES	

AMENDMENT AND RESPONSE TO FINAL OFFICE ACTION

MAIL STOP AF

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Final Office Action dated April 9, 2013, please amend the above-identified application as follows on the accompanying pages.

TABLE OF CONTENTS

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Issue Classification 	Application/Control No. 13088369	Applicant(s)/Patent Under Reexamination VILCOVSKY, NISSI
	Examiner VIJAY SHANKAR	Art Unit 2697

CPC		
Symbol	Type	Version

CPC Combination Sets				
Symbol	Type	Set	Ranking	Version

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION													
CLASS		SUBCLASS				CLAIMED					NON-CLAIMED								
345		204				G	0	6	F	3 / 038 (2013.01.01)									
CROSS REFERENCE(S)																			
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																		
345	212																		

NONE		Total Claims Allowed:	
		20	
(Assistant Examiner)	(Date)		
/VIJAY SHANKAR/ Primary Examiner. Art Unit 2697	8/23/13	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2A, 2B

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or **Fax (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)

46188 7590 09/03/2013
Nixon Peabody LLP
P.O. Box 60610
Palo Alto, CA 94306

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 facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100	8308

TITLE OF INVENTION: DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$890	\$300	\$0	\$1190	12/03/2013

EXAMINER	ART UNIT	CLASS-SUBCLASS
SHANKAR, VIJAY	2697	345-204000

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 03-02 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 NIXON PEABODY LLP
2 Joseph Bach, Esq.
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 has been filed for recordation as set forth in 37 CFR 3.11. 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. The following fee(s) are submitted:

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-3557 (enclose an extra copy of this form).

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 form 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: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Joseph Bach/

Date December 2, 2013

Typed or printed name Joseph Bach

Registration No. 37,771

This collection of information 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 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, 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.

Electronic Patent Application Fee Transmittal				
Application Number:		13088369		
Filing Date:		17-Apr-2011		
Title of Invention:		DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES		
First Named Inventor/Applicant Name:		Nissi Vilcovsky		
Filer:		Joseph Bach/Monica Moreno		
Attorney Docket Number:		067055-001100		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
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	2501	1	890	890
Publ. Fee- Early, Voluntary, or Normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1190

Electronic Acknowledgement Receipt	
EFS ID:	17545588
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	46188
Filer:	Joseph Bach/Monica Moreno
Filer Authorized By:	Joseph Bach
Attorney Docket Number:	067055-001100
Receipt Date:	02-DEC-2013
Filing Date:	17-APR-2011
Time Stamp:	20:00:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$1190
RAM confirmation Number	7787
Deposit Account	503557
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Issue Fee Payment (PTO-85B)	067055_001100_FeesTransmittal.pdf	122321 81cb76cbab27d878e595e7d14d18a7856b25f3aa	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32049 c9746b0943d9d538c138dc5fa7a340c207f7cb7f	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			154370		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					



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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/088,369	01/07/2014	8624883	067055-001100	8308

46188 7590 12/18/2013
Nixon Peabody LLP
P.O. Box 60610
Palo Alto, CA 94306

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 114 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):

Nissi Vilcovsky, Tokyo, 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.

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
13/088,369	April 17 2011

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

- ☒ 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: 146807
- OR
- ☐ 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.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

- ☒ The address associated with the above-mentioned Customer Number
- OR
- ☐ The address associated with Customer Number:
- OR

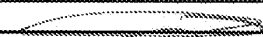
Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

- ☒ Inventor or Joint Inventor (title not required below)
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- ☐ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- ☐ 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)

SIGNATURE of Applicant for Patent

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).

Signature		Date (Optional)	
Name	Nissi Vilcovsky		
Title			

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.

☐ Total of _____ 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.

Electronic Acknowledgement Receipt	
EFS ID:	28826173
Application Number:	13088369
International Application Number:	
Confirmation Number:	8308
Title of Invention:	DEVICES, SYSTEMS AND METHODS OF CAPTURING AND DISPLAYING APPEARANCES
First Named Inventor/Applicant Name:	Nissi Vilcovsky
Customer Number:	46188
Filer:	Joseph Bach/Devon Pack
Filer Authorized By:	Joseph Bach
Attorney Docket Number:	067055-001100
Receipt Date:	04-APR-2017
Filing Date:	17-APR-2011
Time Stamp:	13:14:30
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	13088369Nissi_Vilcovsky_POA.pdf	971329	no	1
			6aacb9265c226b771f63f71f3109186b4e68dfce		

Warnings:

Information:	
Total Files Size (in bytes):	971329
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.	



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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100

46188
Nixon Peabody LLP
P.O. Box 26769
San Francisco, CA 94126

CONFIRMATION NO. 8308
POWER OF ATTORNEY NOTICE



Date Mailed: 04/12/2017

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/04/2017.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/cnguyen/



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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/088,369	04/17/2011	Nissi Vilcovsky	067055-001100

CONFIRMATION NO. 8308

POA ACCEPTANCE LETTER

146807
Womble Carlyle Sandridge & Rice, LLP
Attn: IP Docketing
P.O. Box 7037
Atlanta, GA 30537-7037



Date Mailed: 04/12/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/04/2017.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/cnguyen/

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court _____ For The District of Delaware _____ on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO.	DATE FILED 1/28/2021	U.S. DISTRICT COURT For The District of Delaware
PLAINTIFF EyesMatch Ltd. and Memomi Labs Inc.		DEFENDANT Facebook, Inc., Instagram, LLC, and WhatsApp Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 8,624,883 B2	1/7/2014	EyesMatch Ltd.
2 US 7,948,481 B2	5/24/2011	EyesMatch Ltd.
3 US 8,982,109 B2	3/17/2015	EyesMatch Ltd.
4 US 8,982,110 B2	3/17/2015	EyesMatch Ltd.
5		

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
-------	-------------------	------

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy



United States Patent and Trademark Office

Office of the Chief Financial Officer

Document Code:WFEE

User :67142

Sale Accounting Date:06/10/2021

Sale Item Reference Number

13088369

Effective Date

06/08/2021

Document Number
I202160A24522879

Fee Code
2552

Fee Code Description
MAINTENANCE FEE DUE AT 7.5
YEARS

Amount Paid
\$1,880.00

Payment Method
Wire



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	PATENT NUMBER	GROUP ART UNIT	REQUEST ID
13/088,369	8624883	2697	145528

PAIR Correspondence Address/Fee Address Change

The following fields have been changed to Customer Number 26158 on 08/13/2021 via Private PAIR in view of the certification copied below that authorized the change.

- Maintenance Fee Address

The address for Customer Number 26158 is:

26158

WOMBLE BOND DICKINSON (US) LLP

ATTN: IP DOCKETING

P.O. BOX 7037

ATLANTA, GA 30357-0037

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature:	/CHRIS HUMPHREY/
Name:	Chris Humphrey
Registration Number:	43683



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	PATENT NUMBER	GROUP ART UNIT	REQUEST ID
13/088,369	8624883	2697	145528

PAIR Correspondence Address/Fee Address Change

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• Correspondence Address

The address for Customer Number 26158 is:

26158

WOMBLE BOND DICKINSON (US) LLP

ATTN: IP DOCKETING

P.O. BOX 7037

ATLANTA, GA 30357-0037

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

An attorney or Agent of Record registered to practice before the Patent and Trademark Office who has been given power of attorney in this application

Signature:	/CHRIS HUMPHREY/
Name:	Chris Humphrey
Registration Number:	43683

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
 filed in the U.S. District Court For The District of Delaware on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. <u>21-cv-00111-RGA-JLH</u>	DATE FILED <u>1/28/2021</u>	U.S. DISTRICT COURT <u>For The District of Delaware</u>
PLAINTIFF <u>EyesMatch Ltd. and Memomi Labs Inc.</u>		DEFENDANT <u>Facebook, Inc., Instagram, LLC, and WhatsApp Inc.</u>
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 8,624,883 B2	1/7/2014	EyesMatch Ltd.
2 US 7,948,481 B2	5/24/2011	EyesMatch Ltd.
3 US 8,982,109 B2	3/17/2015	EyesMatch Ltd.
4 US 8,982,110 B2	3/17/2015	EyesMatch Ltd.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED TR.	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT <u>See Attached Order</u>

CLERK <u>John A. Cerino</u>	(BY) DEPUTY CLERK <u>H. Selmyer</u>	DATE <u>6/28/2022</u>
--------------------------------	--	--------------------------

Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy