

户操作同一机器，那么设备控制 IC 23 可以考虑到用户的按键敲击习惯来准确地识别接触状态。此外，如果用户一时持续操作按键，那么按键敲击强度将被改变。在这种情况下，用户可以根据需要调节阈值以便保持舒适的使用环境。更进一步讲，为单个登录用户存储阈值，
5 然后把所述阈值作为初始值用于各个用户。

在图 4 中，显示驱动器 22(作为显示控制器)和显示单元 5 可以根据接触状态改变输入设备的指示模式。举例来说，当指示虚拟键盘时，可以容易地识别用户手指的“未接触”、“接触”或者“按键敲击”状态。在帮助用户习惯于输入设备 20 的过程中，这是十分有效的。依照不同
10 于“未接触”和“按键敲击”状态的方式来示出“接触”状态，这使用户能知道用户手指是否位于初始位置按键上，并且总是把手指放置在初始位置上。

按键的亮度可随着接触状态改变，这使得输入设备 20 能够在昏暗的地方使用。此外，输入设备上的生动和动态指示将为用户提供附带好处，例如使用输入设备 20 的乐趣、有趣的感觉、对所有物的爱好、
15 满足感等等。

输入设备 20、设备控制 IC 23(作为通告部分)和扬声器 26 的组合可以根据对象接触位置和输入设备 20 上的图像位置之间的关系来发出识别声音。这使用户能知道重复的打字错误或者偏离每个按键中心的量。用户可以练习以便减少打字错误并且变得熟练。
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输入设备 20 和设备控制 IC 23(作为通信部分)向设备通知所述接触状态，其中所述设备响应于来自输入设备的信号实际处理所述信息。举例来说，当用户手指位于初始位置上时，此状态将被通知给终端设备。

25 输入设备 20 的光发射单元 27 根据接触检测层 10a(图 2)上的对象的接触状态来发光。举例来说，用户可以看见并且识别出他或者她的手指位于按键发光的初始位置。

设备控制 IC 23(起特殊处理执行单元的作用)可以准确地确定输入设备上的对象的接触状态，并且执行诸如对象验证、设备保护、用

户保护和字符转换之类的特殊处理。所述设备控制 IC 23 作为特殊处理部分在如下方面是有利的。

设备控制 IC 23 可以通过比较特征量与预定阈值来验证所述对象。这在防止用户的保密信息被泄漏给除指定当事人之外的任何人的方面是有效的。

所述接触强度阈值被设置,以便当对象(即,用户)以可能对接触检测层 10a 产生不利影响的强度与接触检测层 10a 接触时,发出警告,或者使输入设备 20 不能工作。如果用户过度地或者过于强烈地敲击按键或者初学者以不必要的强度敲击按键,那么这在保护微型计算机免于诸如耗损、故障以及损坏之类的问题方面十分有效。

所述接触强度阈值被设置,以便当对象(即,用户)以可能会向用户施加不必要负担的强度敲击按键时,发出警告或者使输入设备 20 不能工作。这在保护用户方面十分有效。

此外,根据特征量是否超出预定阈值来进行字符转换。举例来说,为了使英文单词的第一个字符大写,要求用户只要强烈地敲击按键。输入设备 20 根据接触强度来将其大写。通常,还会在键盘或者输入/单词转换程序的模式上敲击换档键,为此目的改变所谓的前端处理器。具体来讲,用户强烈地敲击应该被大写的按键,并且以普通强度敲击其它的按键。

其它实施例

虽然上文已经参照某些实施例描述了本发明,但是本发明不局限于上述实施例。根据上述教导,本领域技术人员将想到如上所述的实施例的修改以及变化。

例如,在先前的实施例中,把输入单元 3 与计算机主要单元 30 集成。作为选择,可以依照现有的连接规范、使用通用串行总线(USB)等把外部输入设备连接至计算机主要单元 30。

图 31 示出了这样的例子,其中外部输入设备 20 与微型计算机主要单元相连,并且输入设备的图像(例如,虚拟键盘 25 以及虚拟鼠标 23)被显示在显示单元(LCD) 5 上。USB 电缆 7 用于把输入设备 20 连

接至微型计算机主要单元。与键盘上敲击的按键有关的信息从输入设备 20 被传输给微型计算机主要单元。处理后的数据被显示在连接至计算机主要单元的显示单元上。

图 31 的输入设备 20 处理所述信息,并且在显示单元 5 上示出作为输入单元 3 的虚拟键盘 5a(如图 18 至图 21 所示)、虚拟鼠标 5b 等,与图 1 的输入设备 20 类似。此外,输入设备 20 执行图 24、图 25 和图 28 至图 30 中示出的特殊处理。这些操作可以在微型计算机主要单元的控制下执行。

参照图 32,微型计算机主要单元 130 与装备有输入设备 141 的外部输入单元 140 相连。所述输入设备 141 从图形电路 35(微型计算机主要单元 130 的)经由显示驱动器 22 接收虚拟键盘等的数字图像信号。所述显示驱动器 22 使显示单元 5 示出虚拟键盘 5a 等的图像。

按键敲击/接触位置检测单元 142 检测触摸板 10 的接触检测层 10a 上的对象的接触位置和接触状态,如上参照图 18 至图 21 所述那样。检测到的虚拟键盘或者鼠标的操作结果经由键盘连接电缆(PS/2 电缆)或者鼠标连接电缆(PS/2 电缆)传输给计算机主要单元 130 的键盘/鼠标端口 46。

所述微型计算机主要单元 130 处理接收到的虚拟键盘或者鼠标的操作结果,使图形电路 35 把代表操作结果的数字图像信号发送至显示单元 150 的显示驱动器 28。所述显示单元 29 响应于所述数字图像信号来指示图像。此外,所述微型计算机主要单元 130 把数字图像信号从图形电路 35 发送到显示驱动器 22。因此,显示单元 5 上显示的色彩等(如图 16 和图 17 所示)将被改变。在上述情况中,计算机主要单元 130 起显示控制器、接触强度检测器、特征量提取单元和特殊处理执行单元的作用。此外,响应于键盘或者鼠标的操作结果,所述微型计算机主要单元 130 执行图 24、图 25 和图 28 至图 30 中示出的特殊处理。在该情况下,所述微型计算机主要单元 130 在主存储器 34 中存储如下信息:用于用户验证的密码;基准按键敲击压力;接触区域尺寸的变化或者按键敲击时间的历史记录。把从输入单元 140 接收的键

盘或者鼠标的操作结果与存储在主存储器 34 中的信息进行比较。根据比较结果,所述微型计算机主要单元 130 执行图 24、图 25 或者图 28 至图 30 中示出的用户验证、设备或者用户保护、或者按键转换。必要时,将经由音频信号输出电路 47 从扬声器 48 发出警报,或者将从图形电路 35 向输入单元 140 的显示驱动器 22 或者向显示单元 150 的显示驱动器 28 传输数字可视信号。代表用户验证、设备或者用户保护、或者按键转换的图像被显示在显示单元 150 的显示板 29 上,或者显示在输入单元 140 的显示板 5 上。此外,将从扬声器 48 发出音频警告。

作为选择,虚拟键盘和鼠标的操作结果可以经由 USB 电缆 7a 和 7b、而不是键盘连接电缆和鼠标连接电缆发送给微型计算机主要单元 130 的 USB 设备 38,如图 32 中的虚线所示。

图 33 示出了用于微型计算机主要单元 130 的外部输入单元 140 的另一个例子。在外部输入单元 140 中,触摸板控制/处理单元 143 检测在触摸板 10 上敲击的按键,并且把检测结果经由串行连接电缆 9 发送至微型计算机主要单元 130 的串行/并行端口 45。

所述微型计算机主要单元 130 使用触摸板驱动器将触摸板识别作为输入单元 140,并且执行必要的处理,诸如改变显示单元 5 上显示的键盘图像的色彩,如图 16 和图 17 所示。此外,所述微型计算机主要单元 130 执行图 24、图 25 或者图 28 至图 30 中示出的用户验证、设备或者用户保护、或者按键转换。在上述情况中,计算机主要单元 130 起显示控制器、接触强度检测器、特征量提取单元和特殊处理执行单元的作用。

在图 33 所示出的例子中,可以把触摸板的操作状态经由 USB 连接电缆 7 而不是串行连接电缆 9 发送给 USB 设备 38。

在上述实施例中,只在输入单元 3 中提供触摸板 10。作为选择,可以在显示单元中提供额外的触摸板 10。

参照图 34,可以在上部壳体 2B 中安装额外的触摸板 10。把上部壳体 2B 的触摸板 10 的检测结果传输给触摸板控制/处理单元 143,其把检测结果经由串行连接电缆 9 转送至串行/并行端口 45。

所述微型计算机主要单元 130 使用触摸板驱动器识别出上部壳体 2B 的触摸板, 并且执行必要的处理。

此外, 所述微型计算机主要单元 130 把数字图像信号经由图形电路 35 发送至上部壳体 2B 的显示驱动器 28。然后, 上部壳体 2B 的显示单元 29 指示各种图像。所述上部壳体 2B 经由图 1 中示出的铰链 19 使用信号线与微型计算机主要单元 130 相连。

所述下部壳体 2A 包括按键敲击/接触位置检测单元 142, 用于如图 18 至图 21 所示检测触摸板 10 的检测层 10b 上对象的接触位置和状态, 并且把检测到的键盘或者鼠标的状态经由键盘连接电缆 8a(PS/2 电缆)或者鼠标连接电缆 8b(PS/2 电缆)提供给键盘/鼠标端口 46。

所述微型计算机主要单元 130 根据键盘或者鼠标的操作状态经由图形电路 35 向显示驱动器 22(输入设备 140 的)提供数字图像信号。图 16 和图 17 中示出的显示单元 5 的指示模式将相对于色彩等进行改变。

在上述情况中, 计算机主要单元 130 起显示控制器、接触强度检测器、特征量提取单元和特殊处理执行单元的作用。键盘或者鼠标的操作结果可以经由串行连接电缆 9a 而不是键盘或者鼠标连接电缆传输给串行/并行端口 45, 如图 34 中虚线所示。

在下部壳体 2A 中, 按键敲击/接触位置检测单元 142 可以被替换为图 34 中所示的触摸板控制/处理单元 143。所述微型计算机主要单元 130 可以使用触摸板驱动器识别出键盘或者鼠标的操作结果, 并且执行必要的处理。

在上述实施例中采用了阻抗薄膜类型的触摸板 10。作为选择, 还能够使用如图 35 所示的光学触摸板。举例来说, 红外线扫描器类型的传感器阵列也是可用的。在红外线扫描器类型的传感器阵列中, 光线从光发射 X 轴阵列 151e 至光接收 X 轴阵列 151c 进行扫描, 并且从光发射 Y 轴阵列 151d 至光接收 Y 轴阵列 151b 进行扫描。其中光路以矩阵形状相交的空间是接触检测区域, 而不是触摸板 10。当用户试图按压显示单元 5 的显示层时, 用户手指首先经过接触检测区域, 并且打断光路 151f。光接收 X 轴传感器阵列 151c 和光接收 Y 轴传感器阵列

151b 都无法接收到任何光线。因此, 所述接触检测单元 21(图 4 中示出)可以根据 X 和 Y 坐标来检测对象的位置。所述接触检测单元 21 检测经过接触检测区域的对象的强度(即, 对象和显示单元 5 接触的强度)以及根据所述强度的特征量。因此, 将识别出所述接触状态。举例来说, 当具有某一横截面积的指尖经过接触检测层时, 多条红外线被中断。每单位时间中断的红外线的增加比例取决于指尖经过接触检测层的速度。换句话说, 如果强烈地按在显示板上, 那么手指迅速地通过接触检测层。因此, 这能够根据中断的红外线数目来检查是否强烈地敲击了按键。因此, 根据检查结果, 将把警告显示在输入单元 3 的显示单元 5 上。

将便携式微型计算机作为终端设备来举例说明。作为选择, 所述终端设备可以是电子数据书、个人数字助理(PDA)、蜂窝电话等。

在图 18 的流程图中, 首先检测接触位置(步骤 S104), 然后检测(步骤 S105)接触强度。步骤 S104 和 S105 可以以相反的顺序来执行。步骤 S108(通知按键敲击)、步骤 S109(指示按键敲击)和步骤 S110(产生识别声音)也可以以相反的顺序来执行。对于图 20 中示出的处理, 同样如此。

图 1

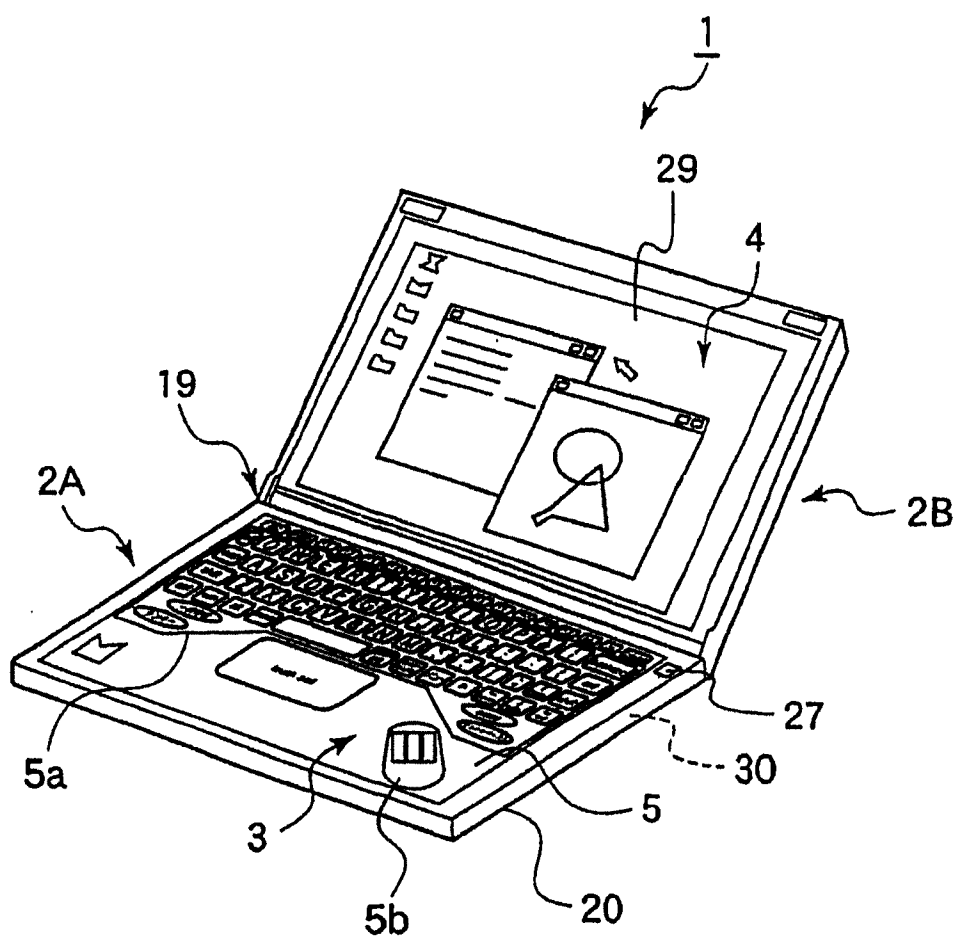


图 2

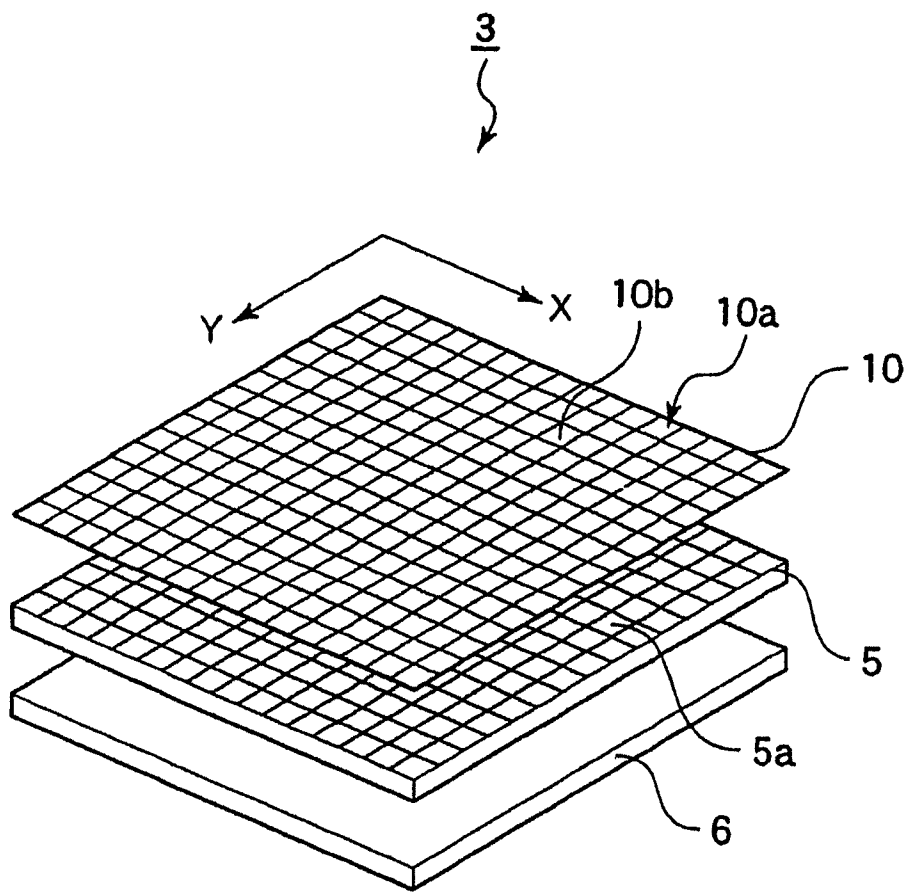


图 3A

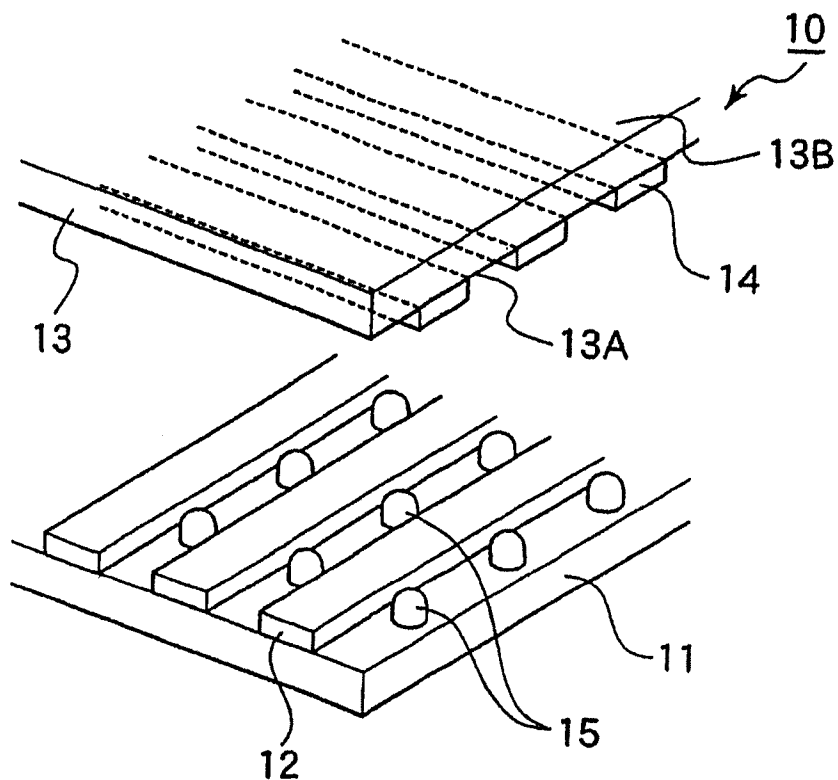


图 3B

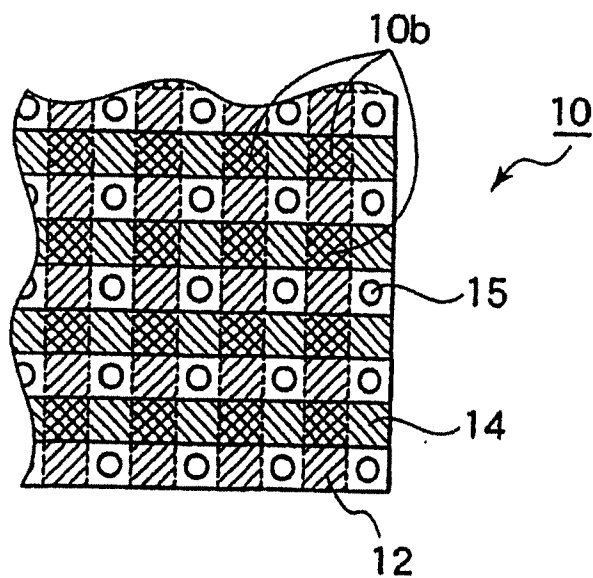
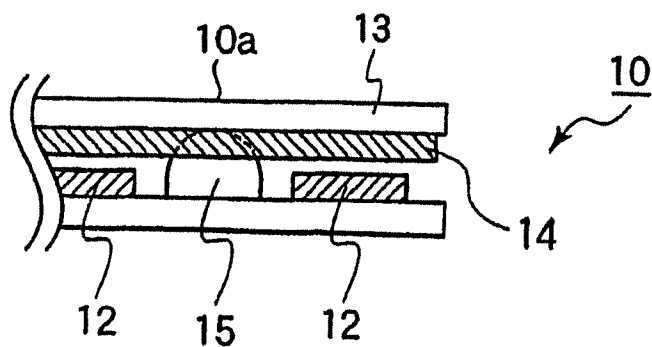


图 3C



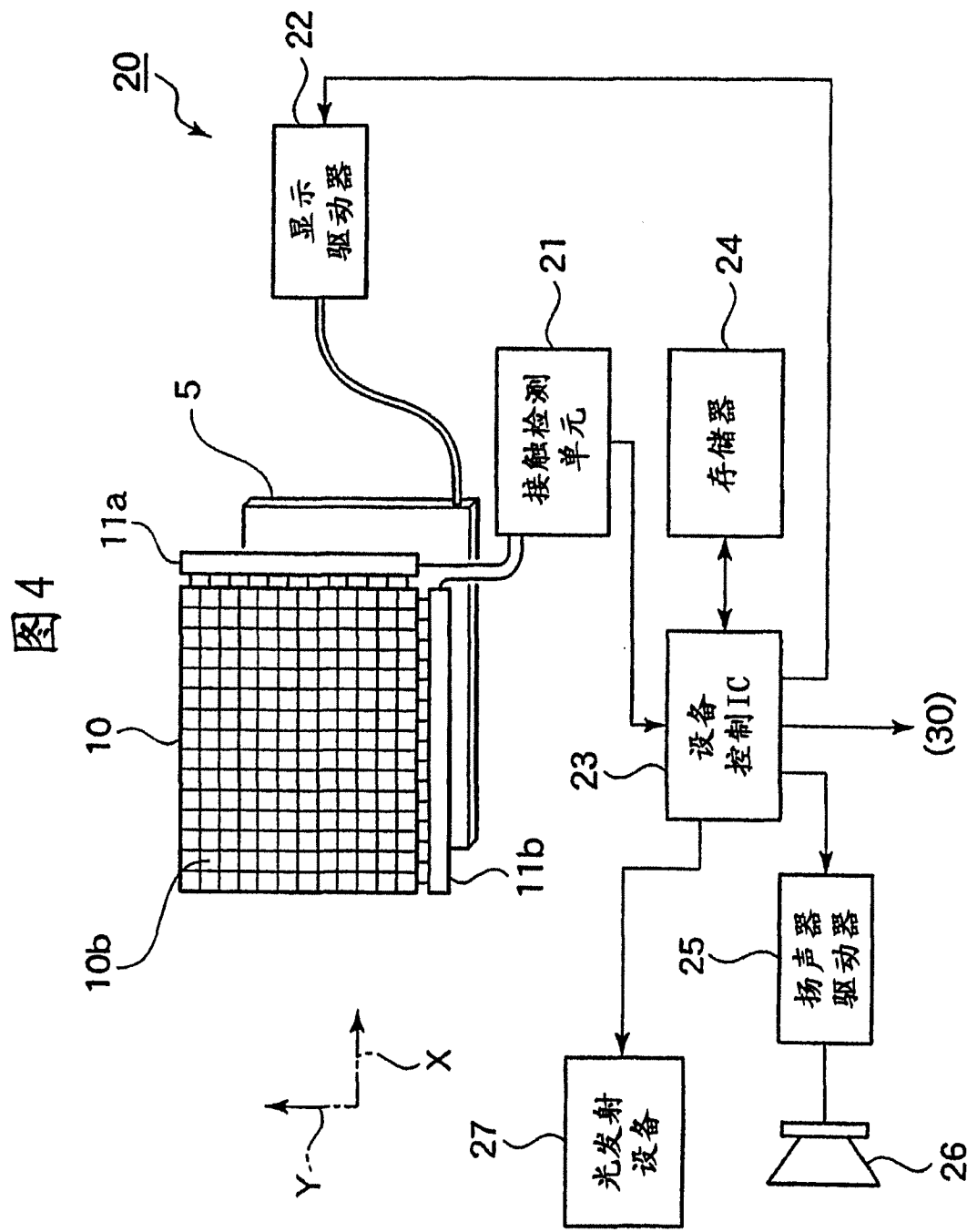


图5

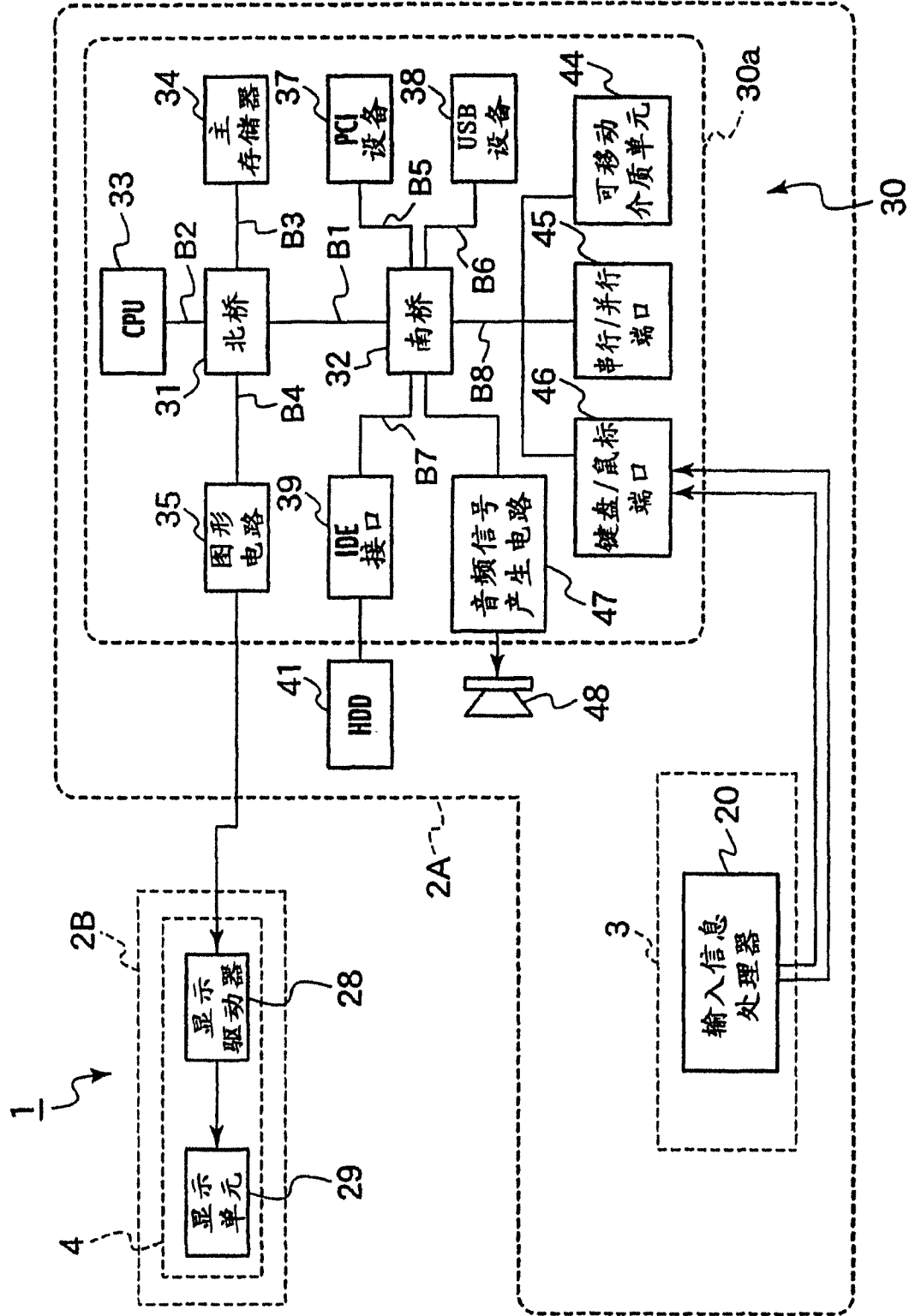


图6

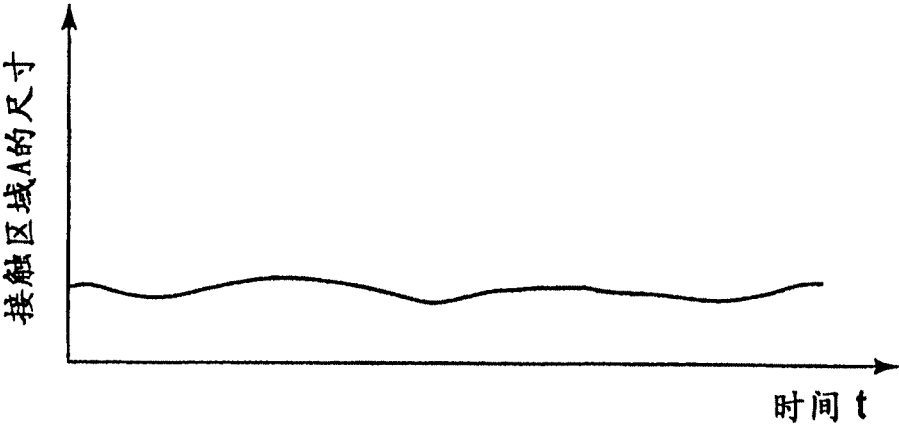


图7

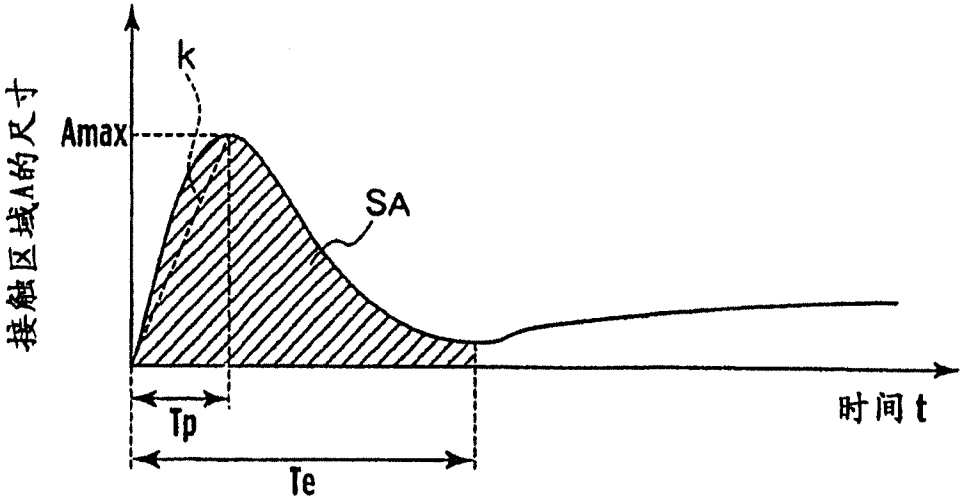


图 8A

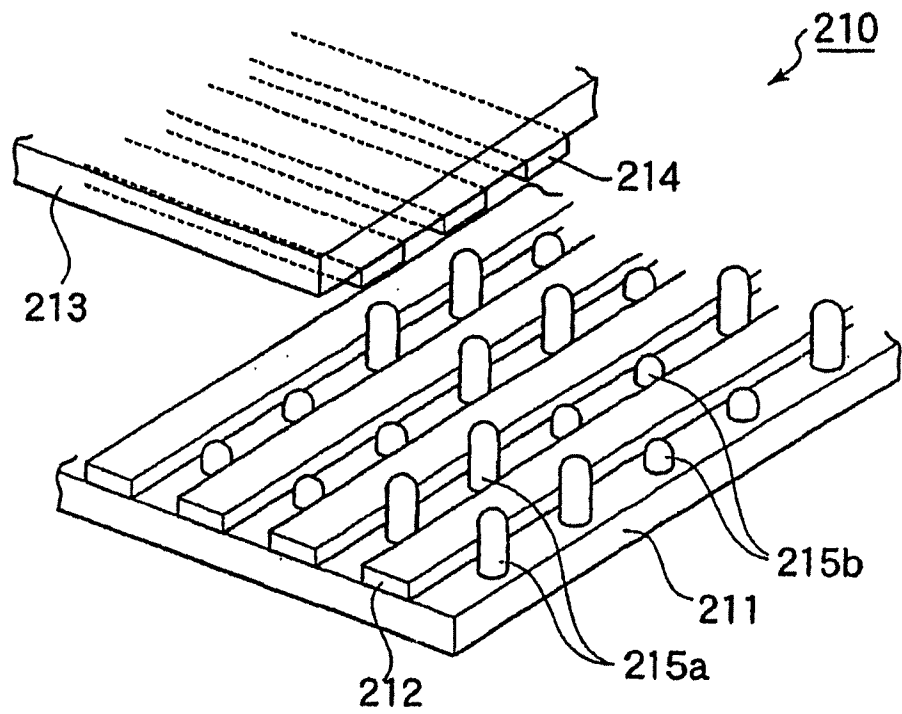


图 8C

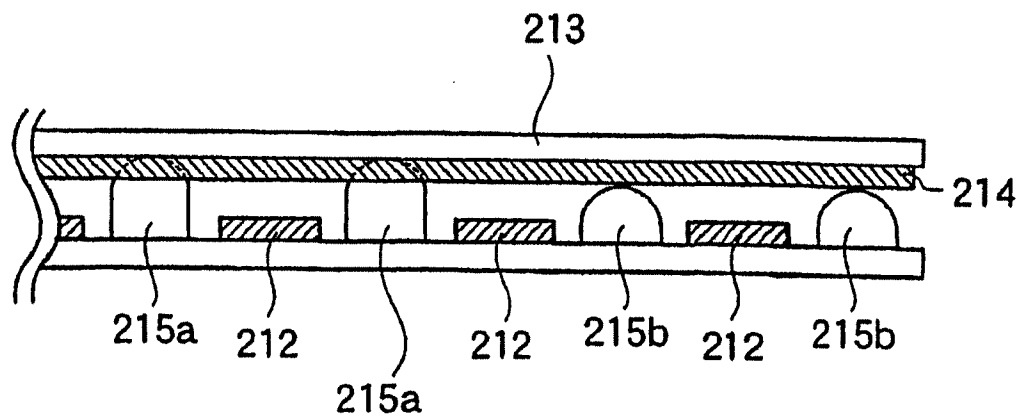


图 8B

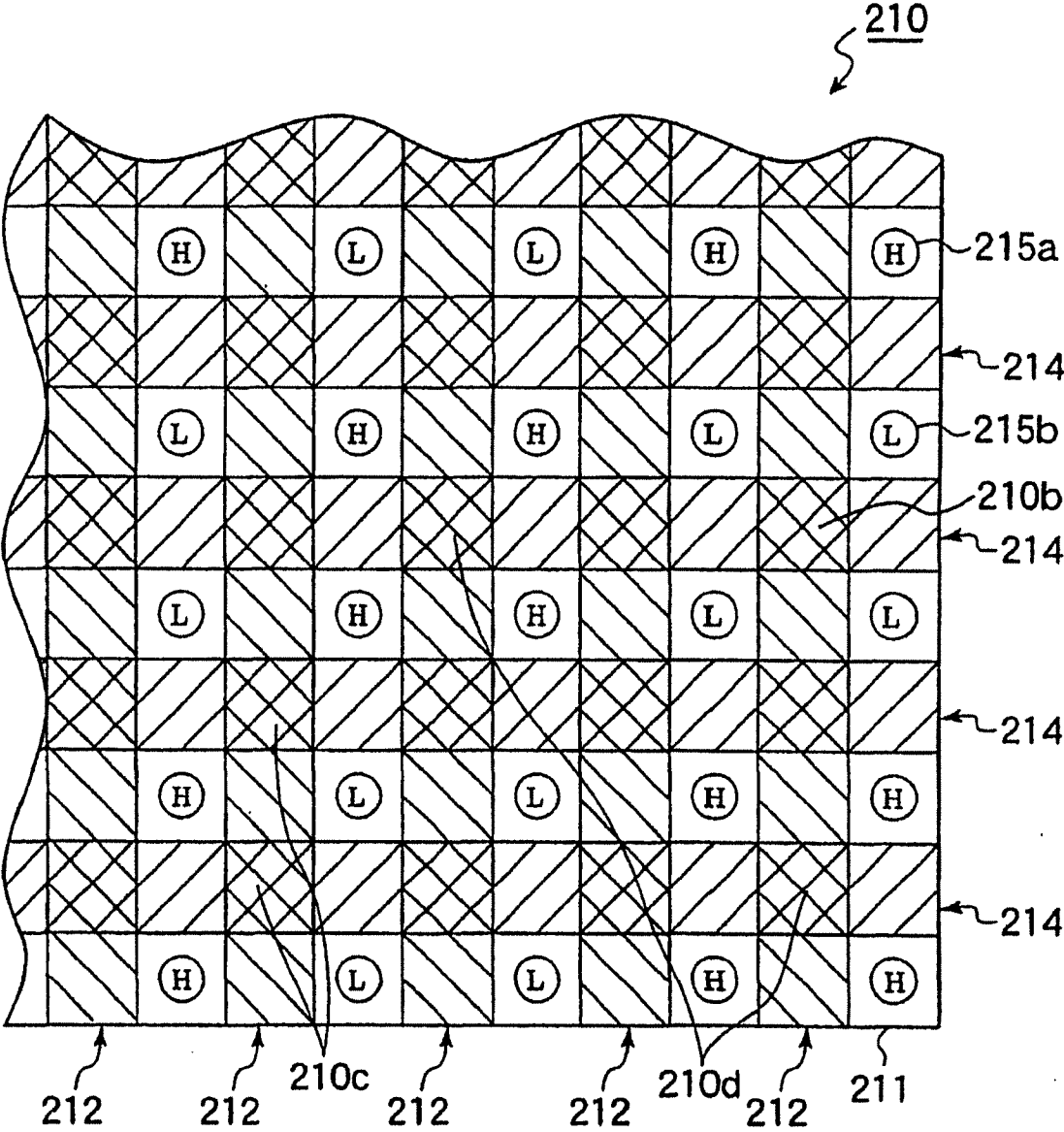


图9

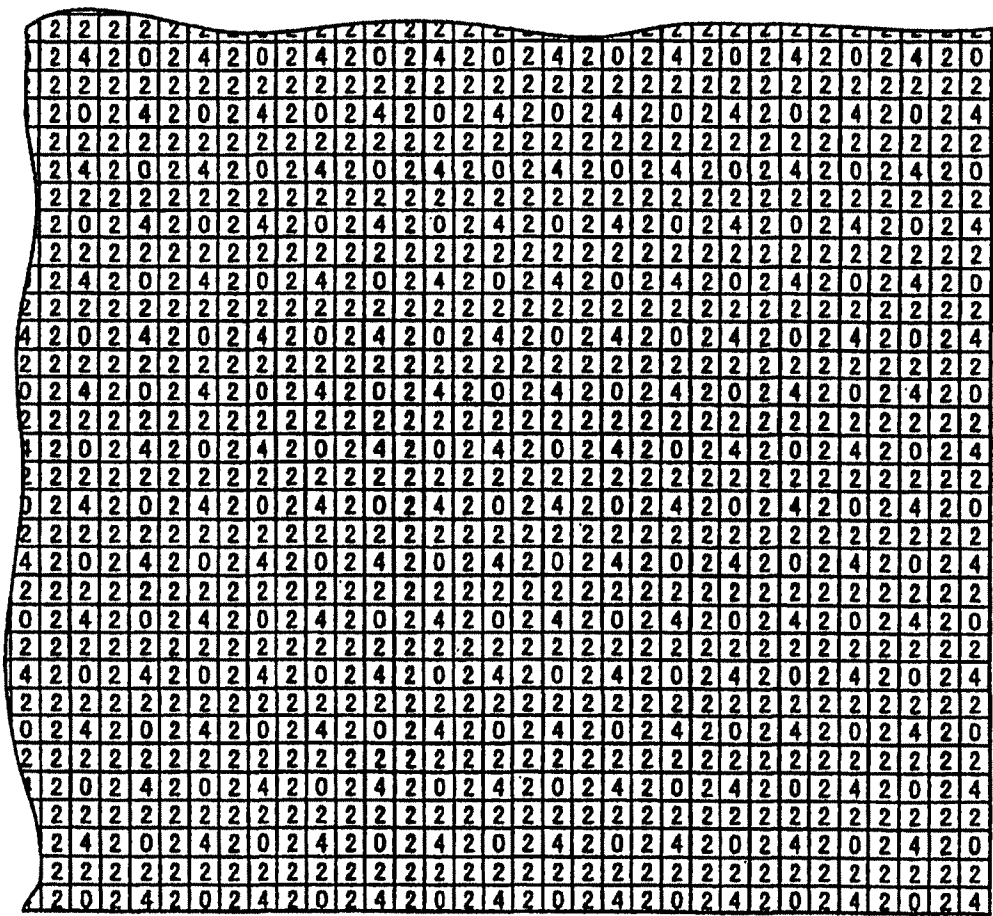


图10

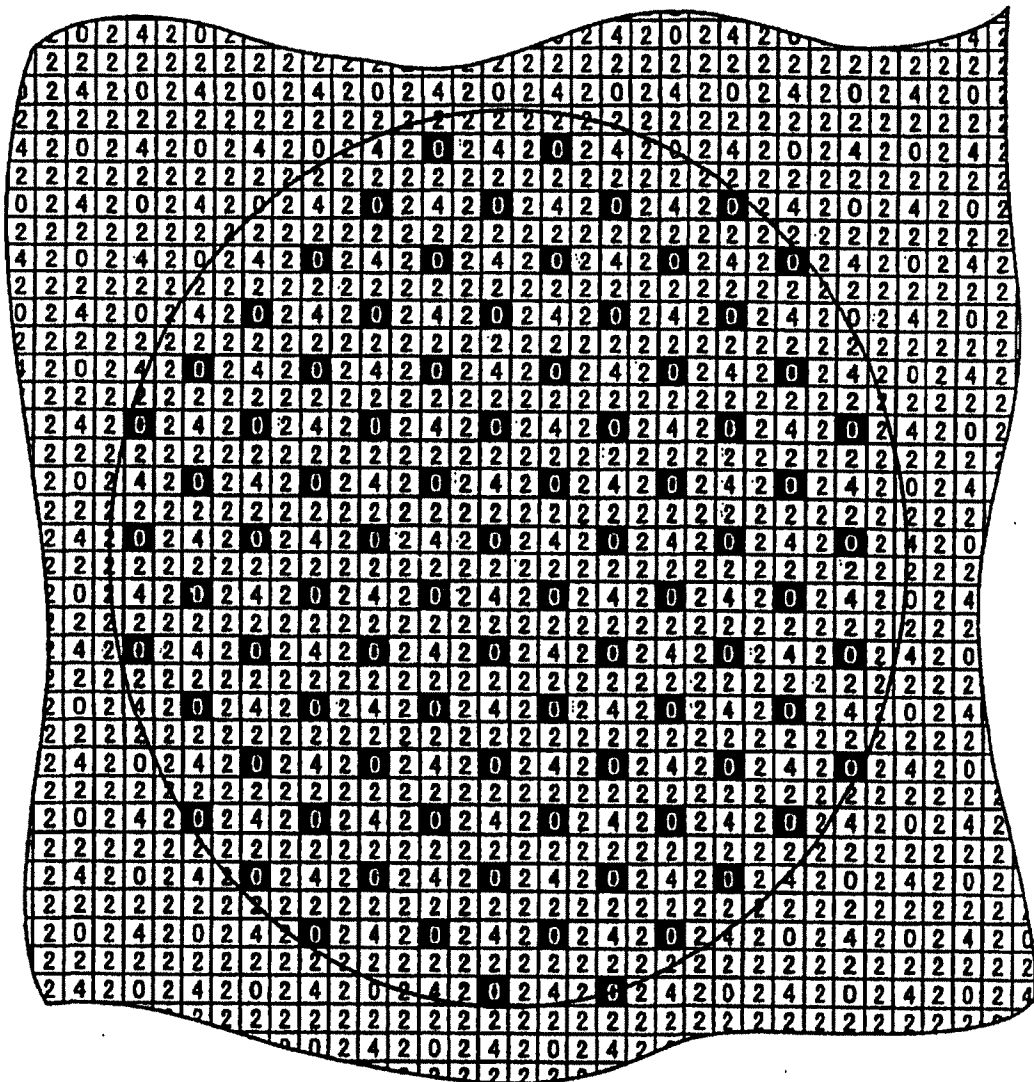


图 11

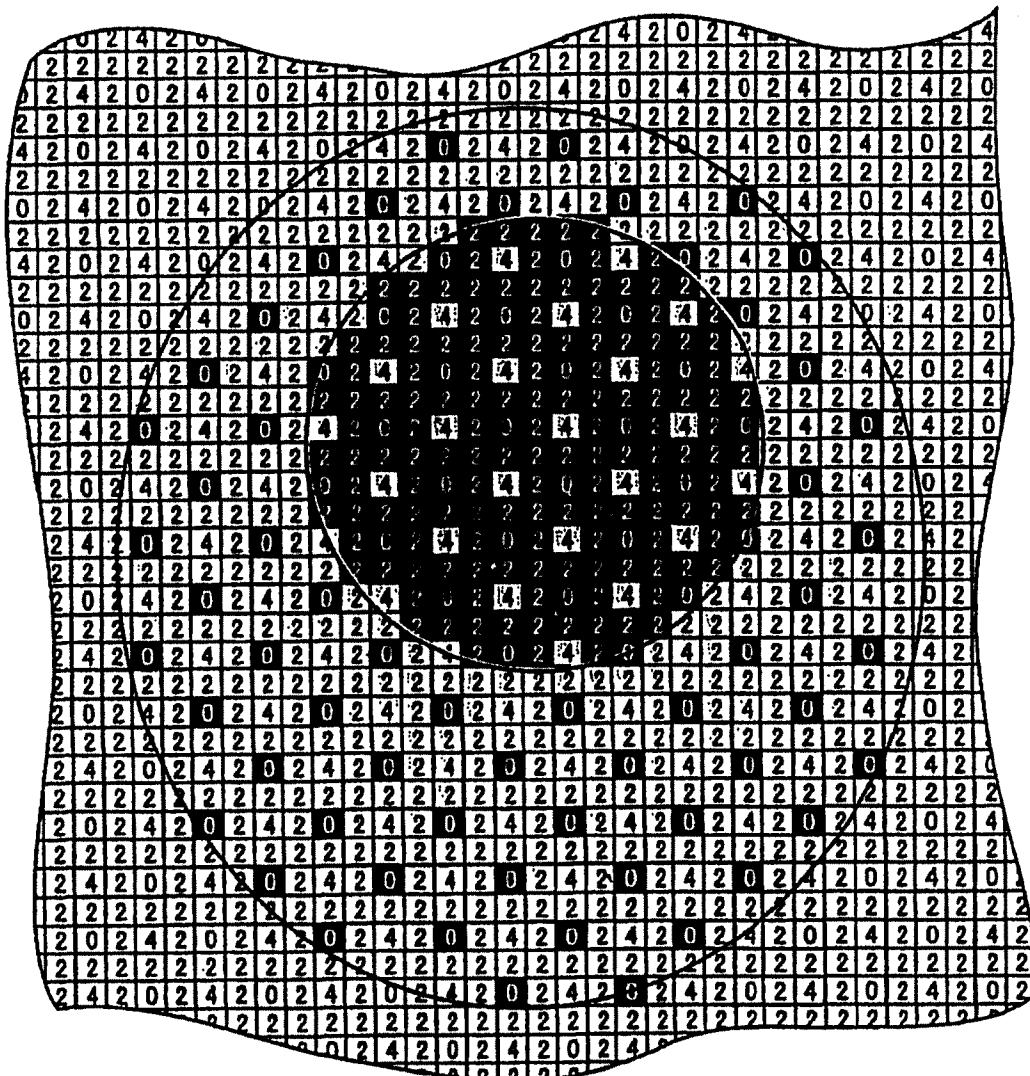


图12

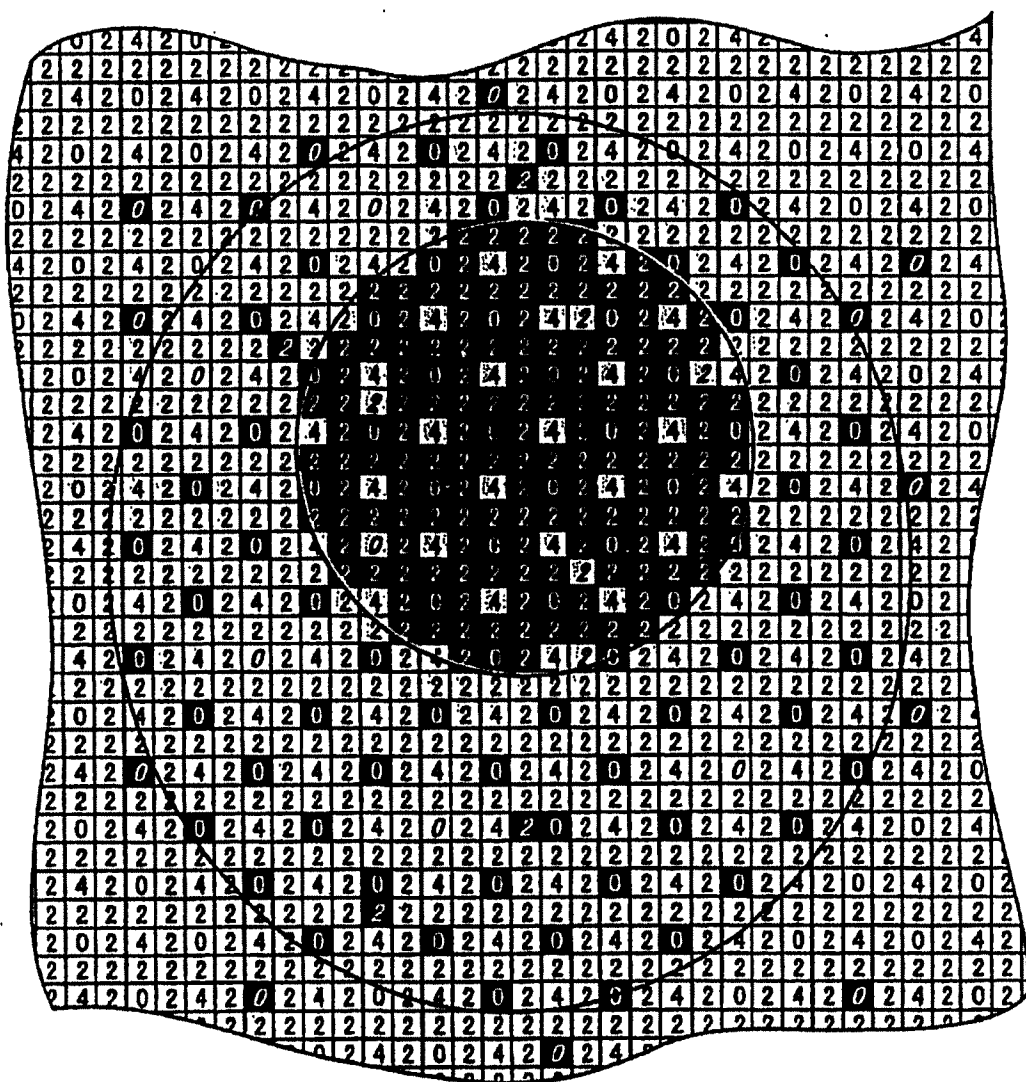


图13

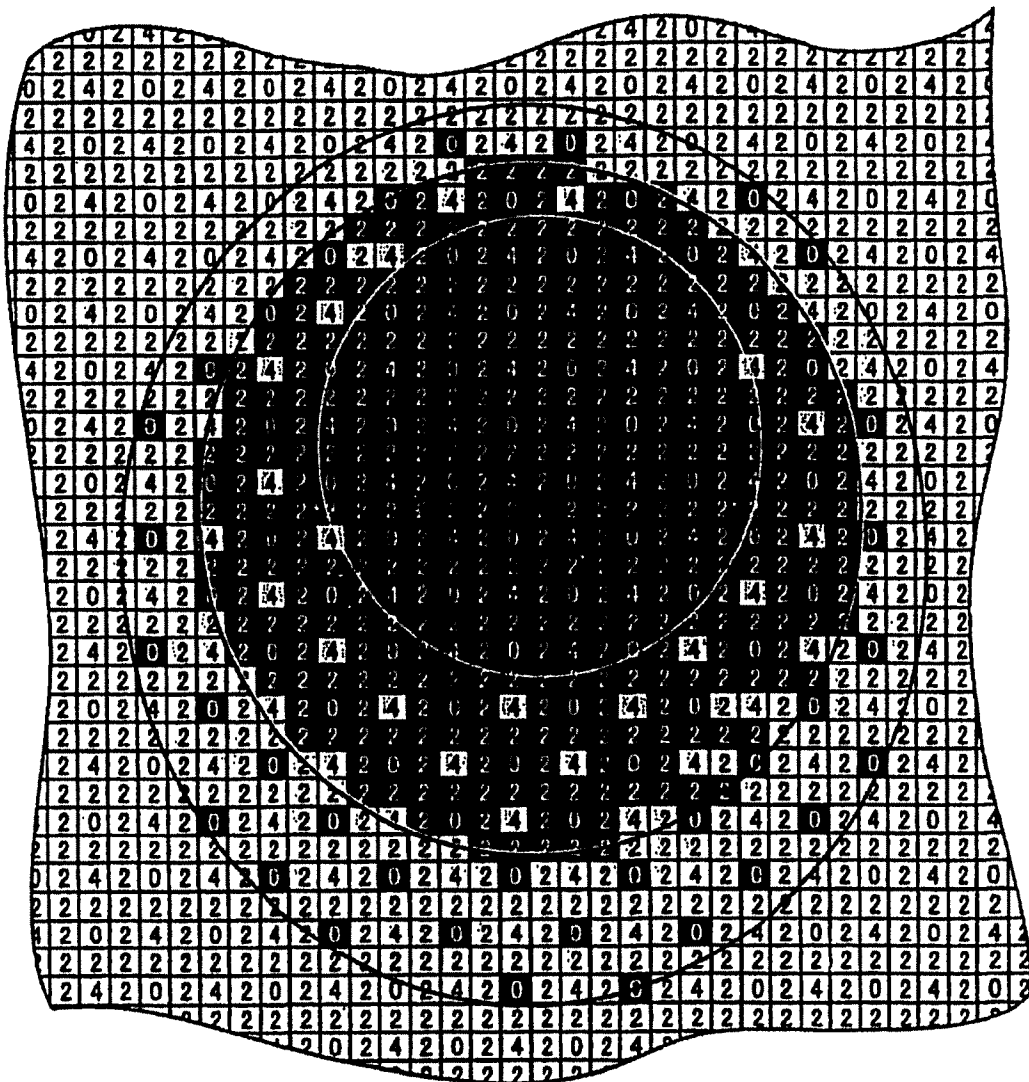


图14

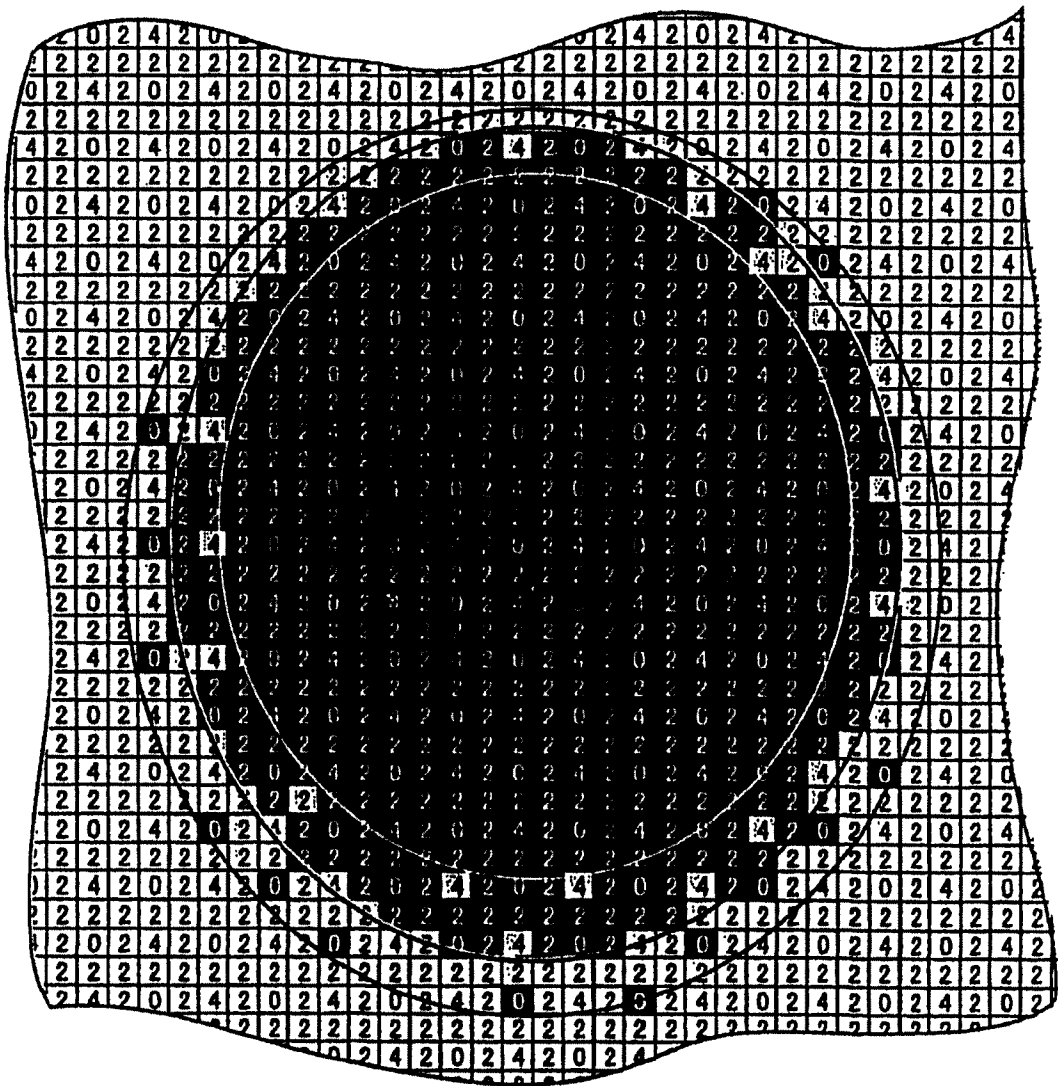


图15

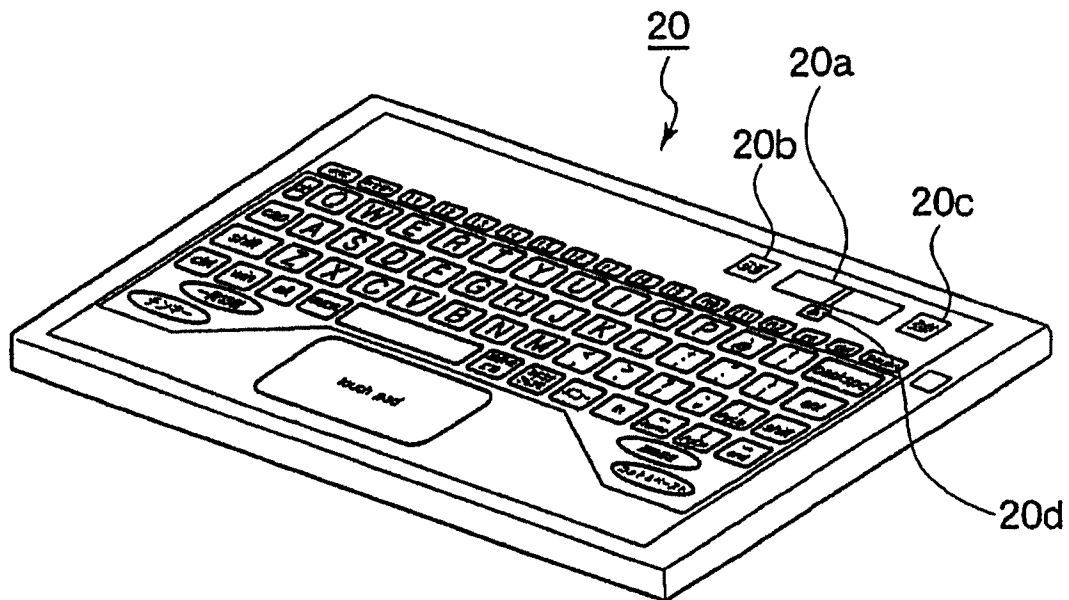


图 17

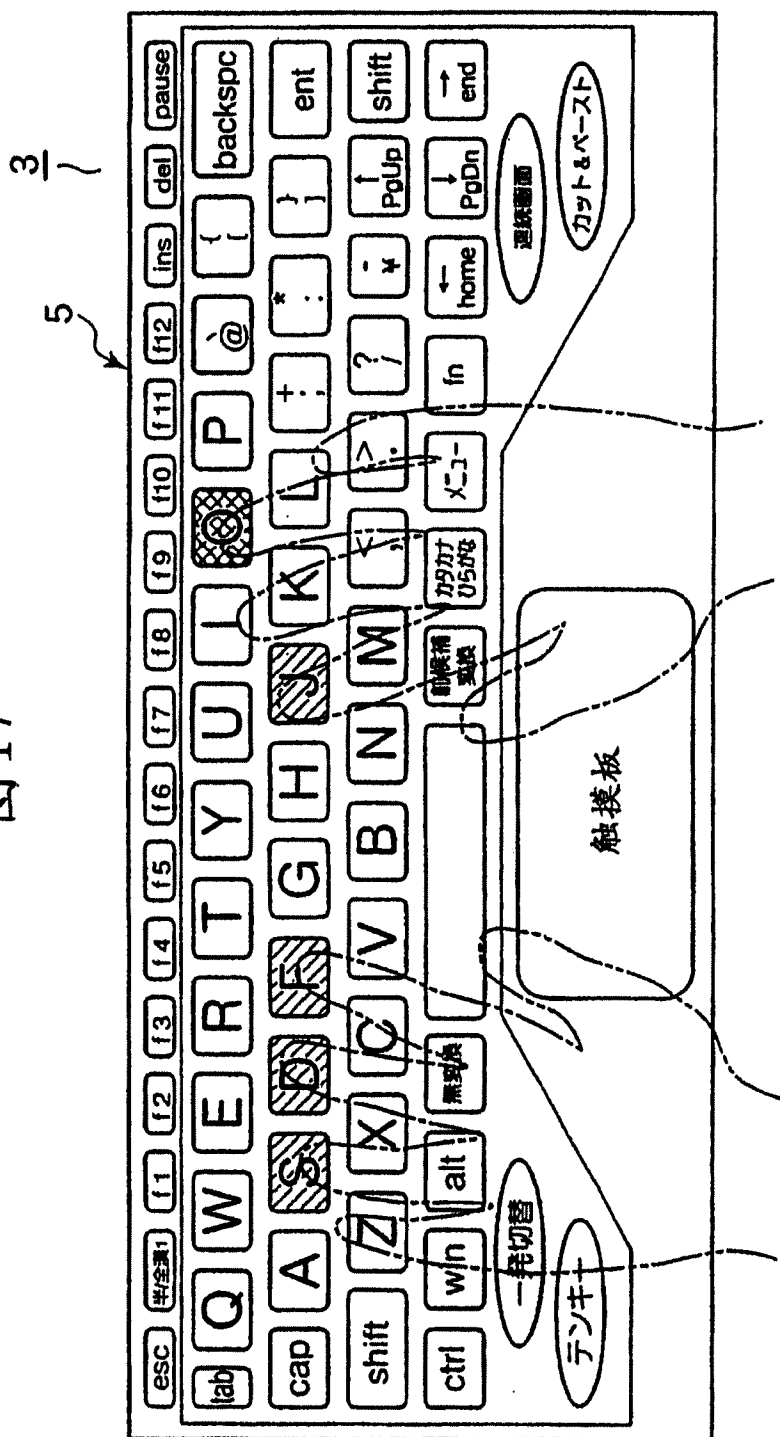


图18

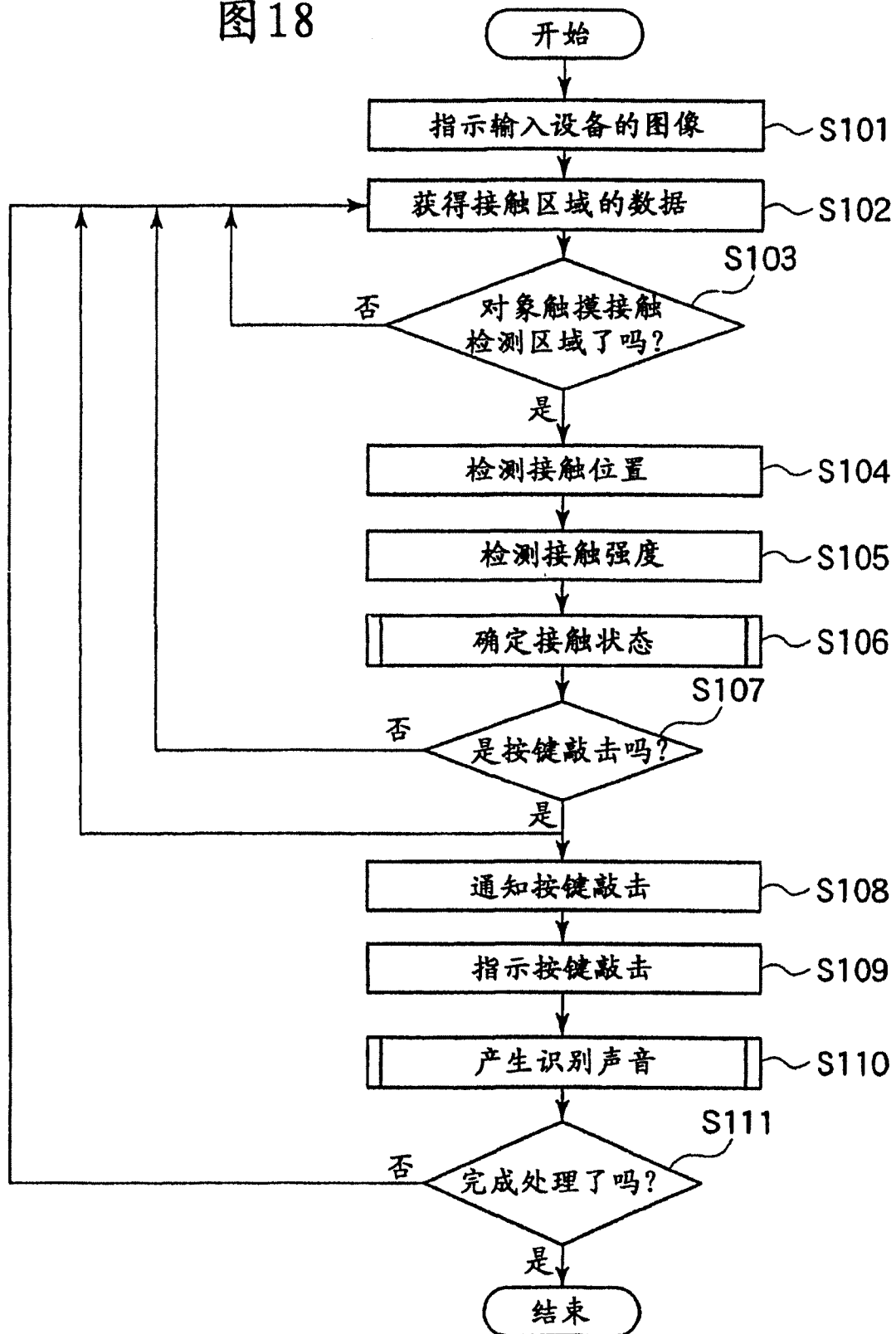


图 19

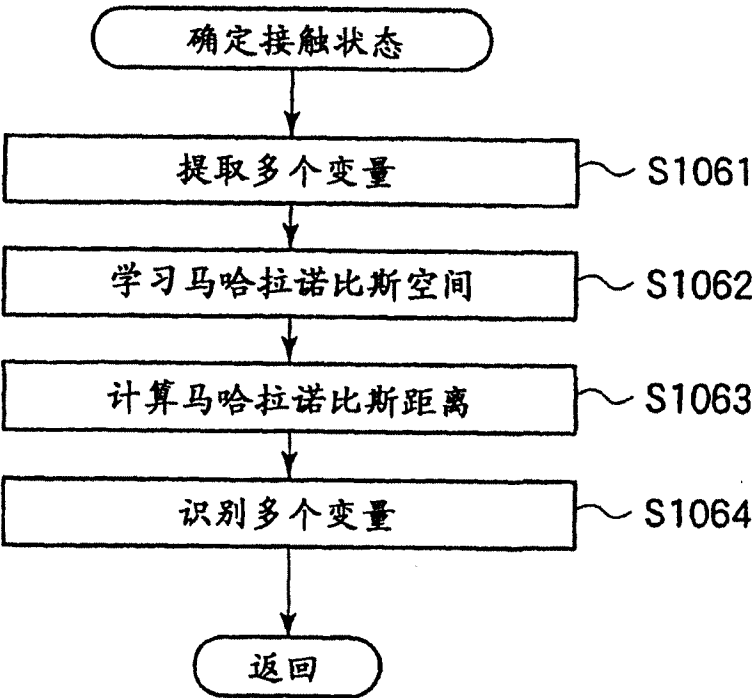


图 20

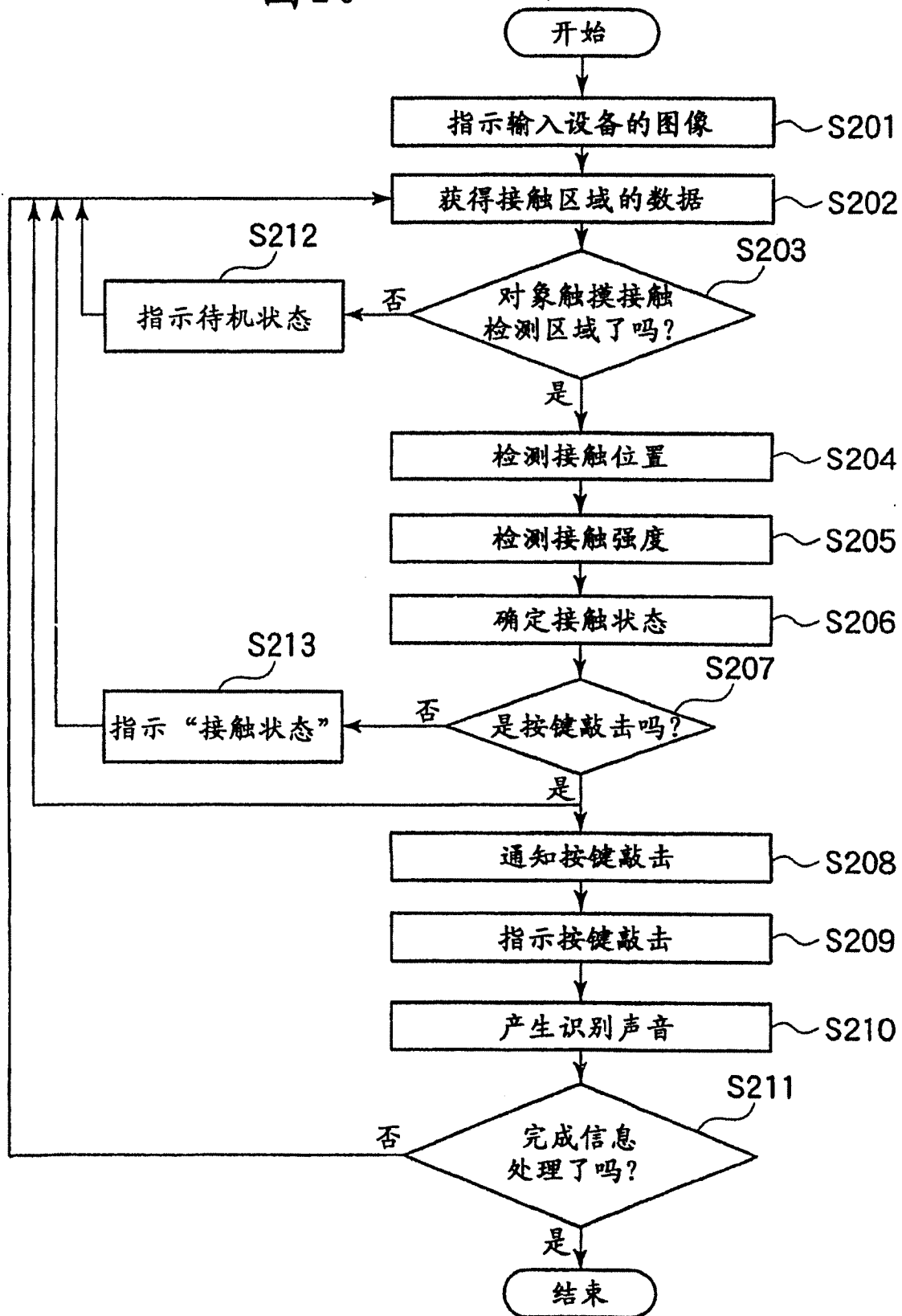
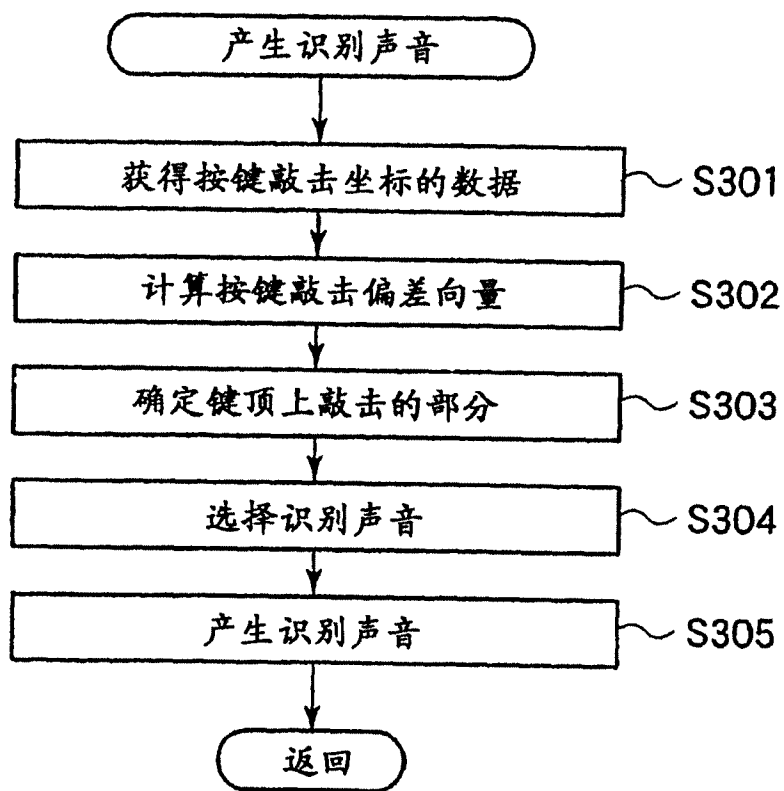


图21



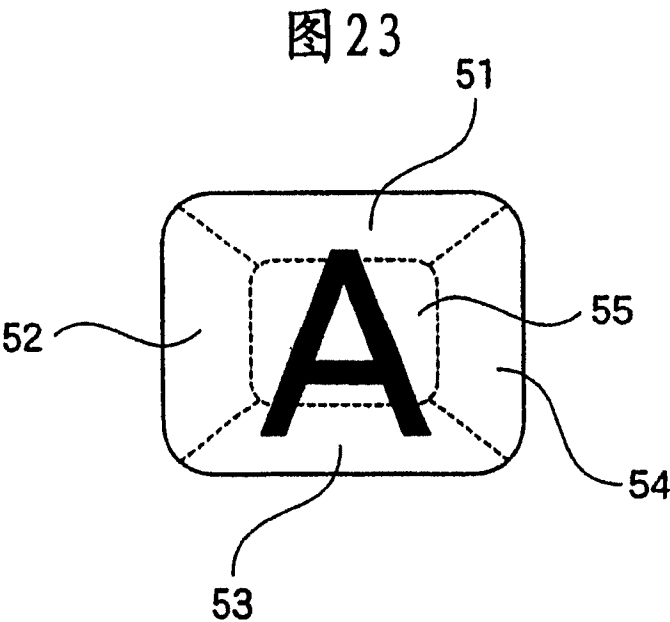
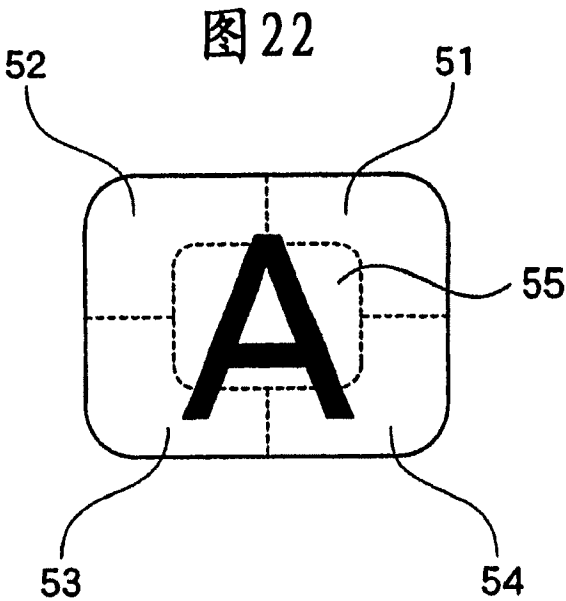


图 24

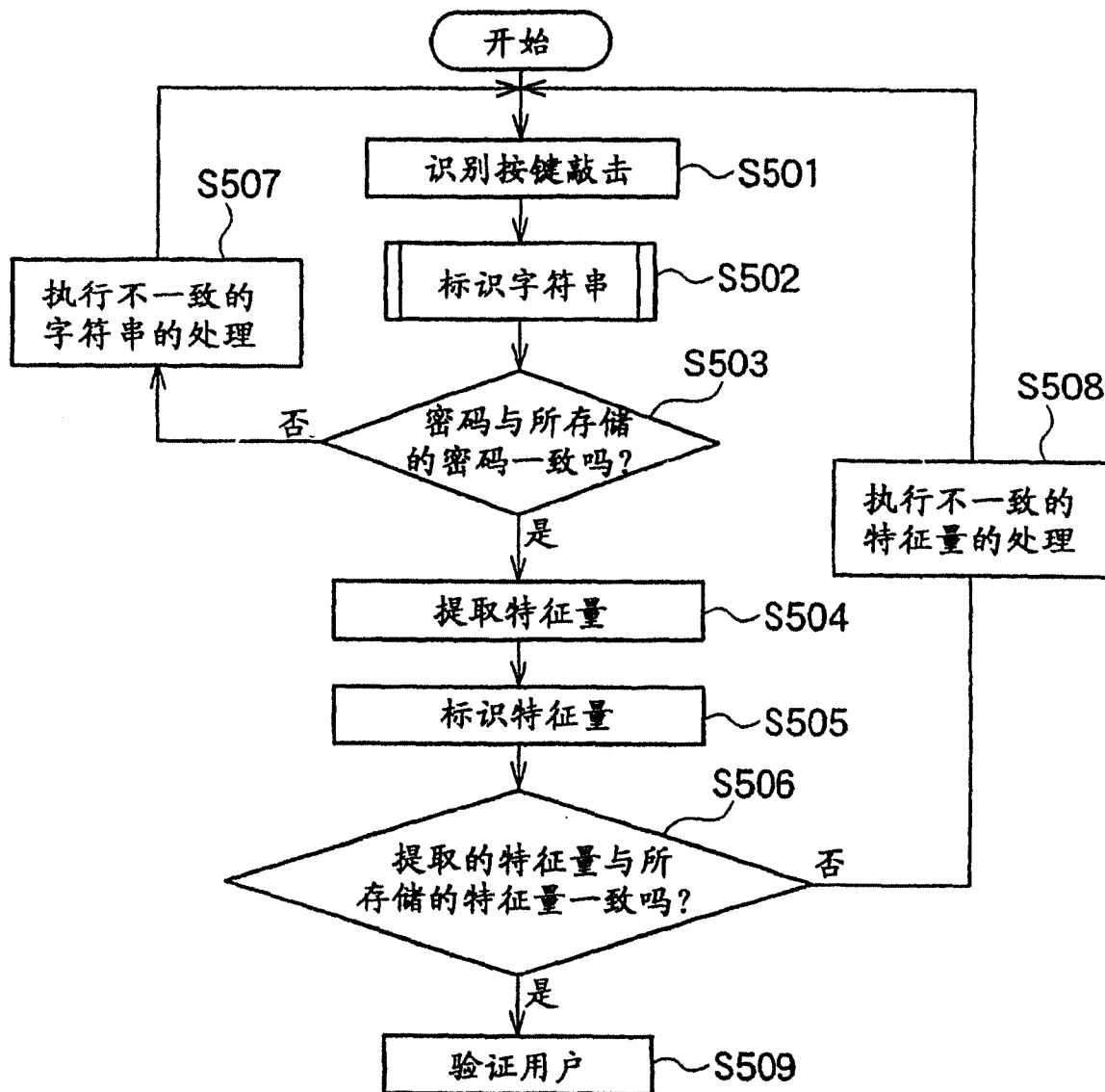


图25

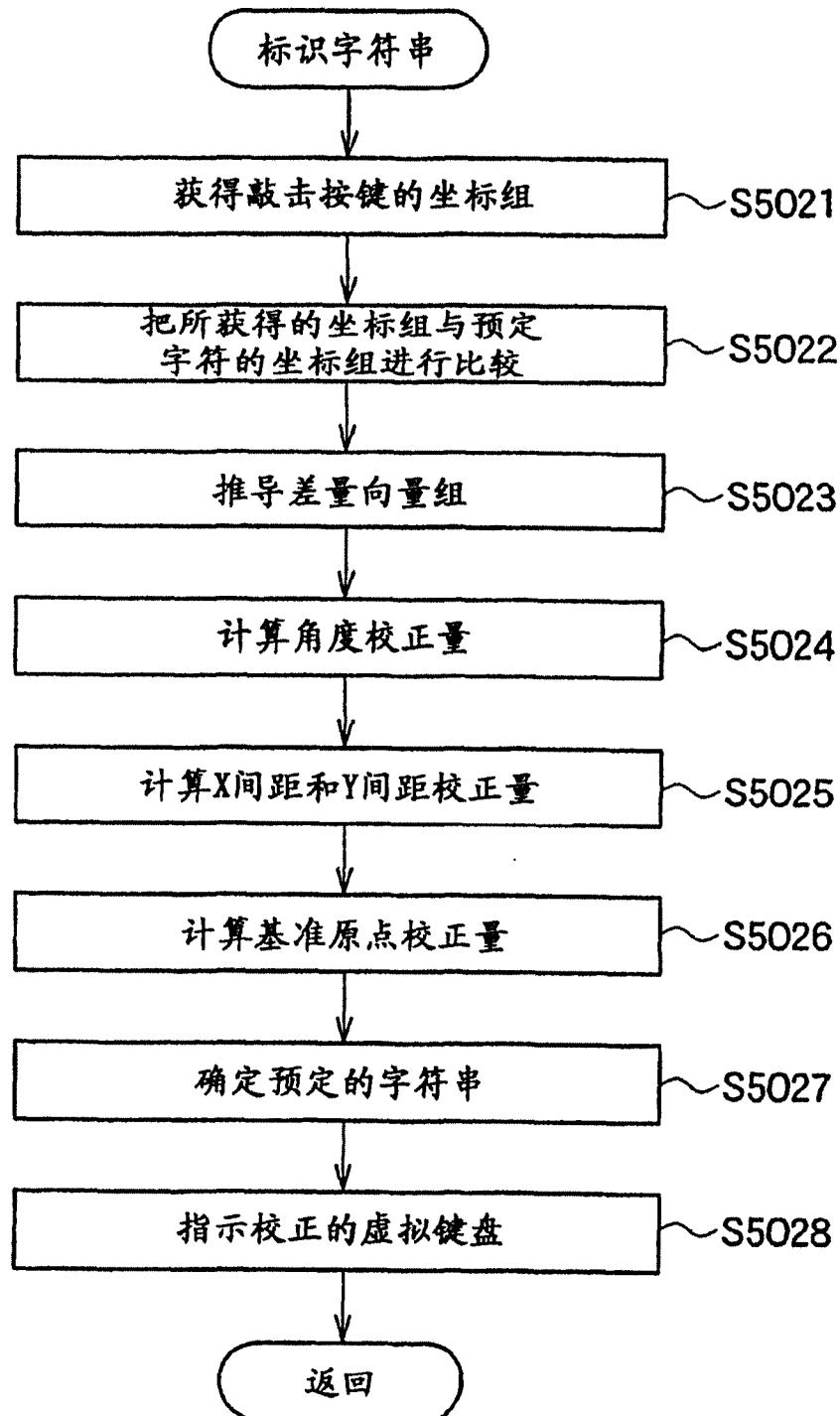


图 26

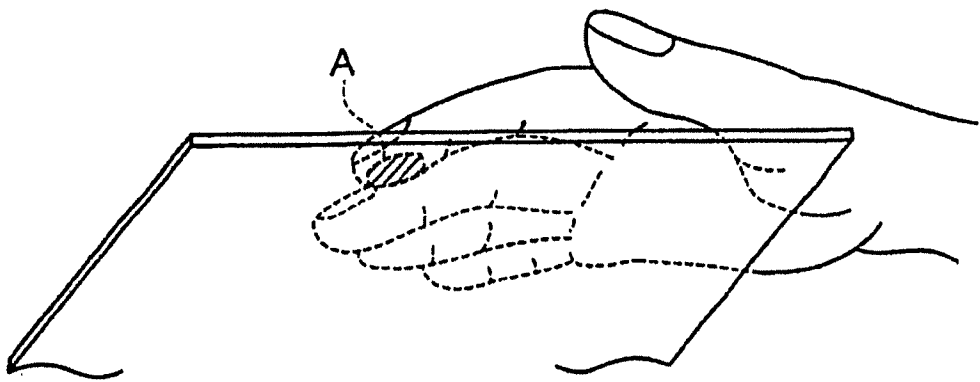


图 27A

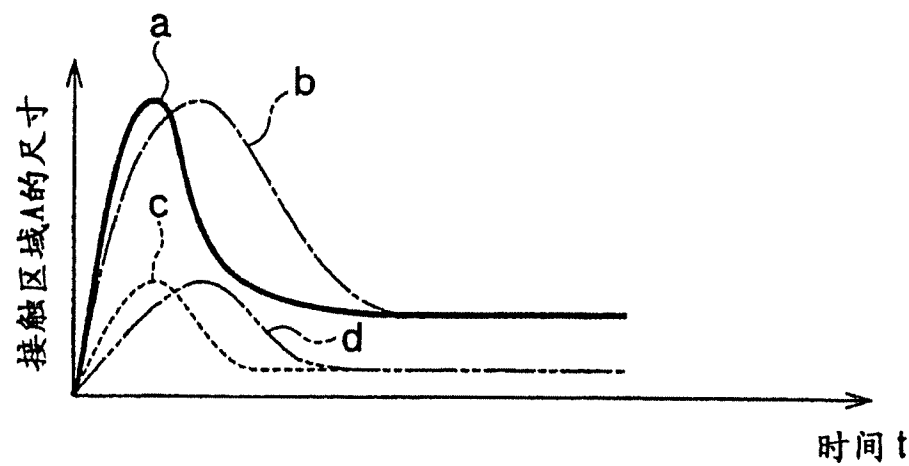


图 27B

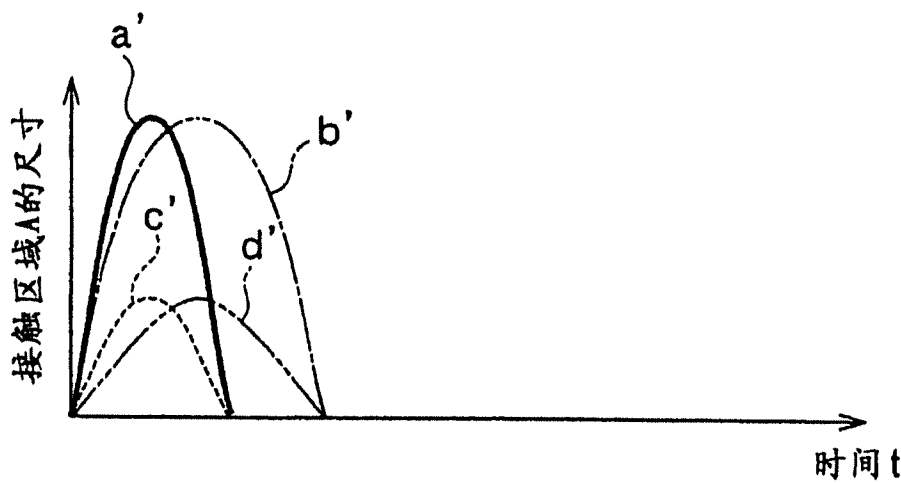


图 28

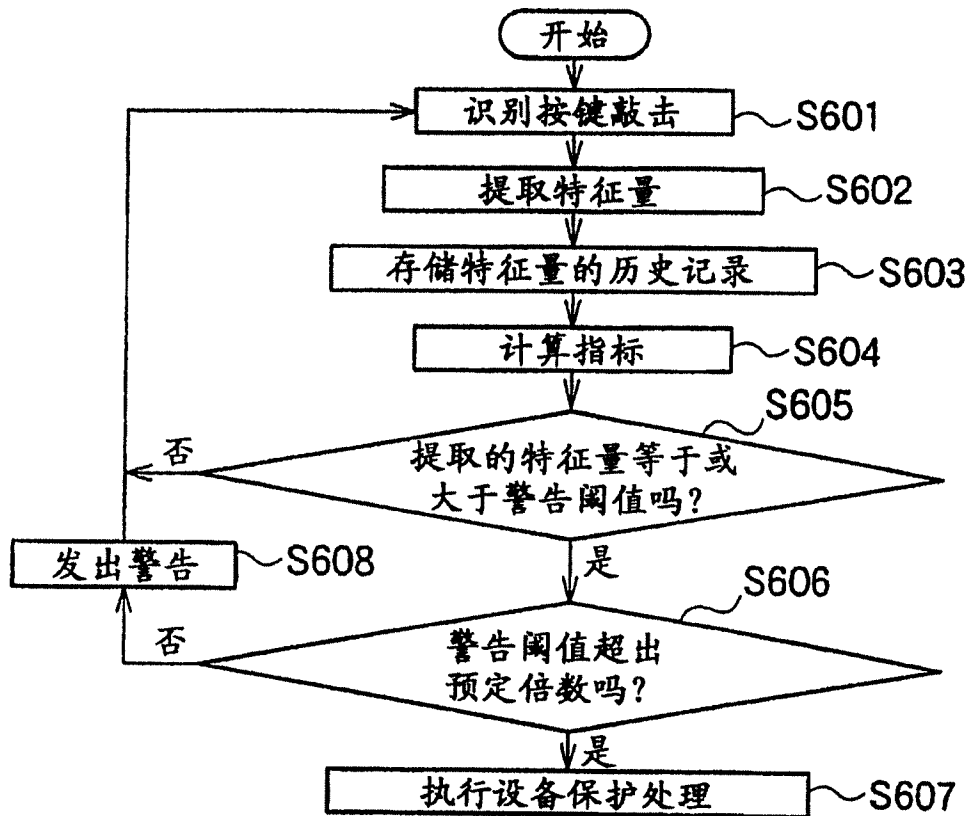


图 29

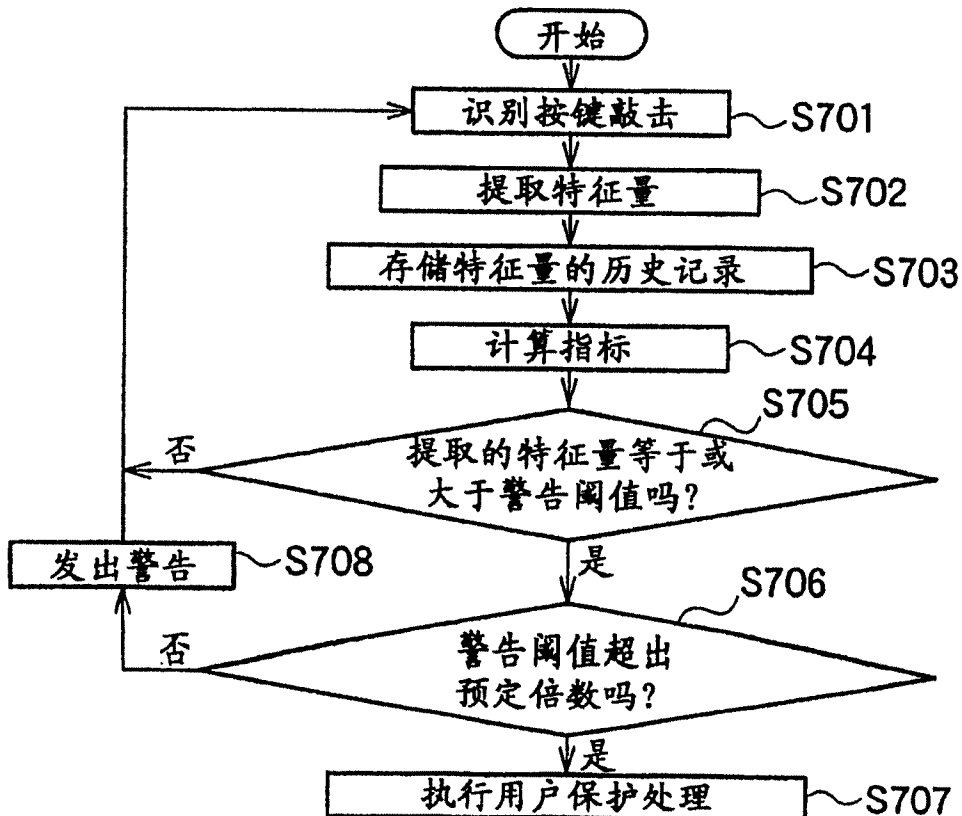


图 30

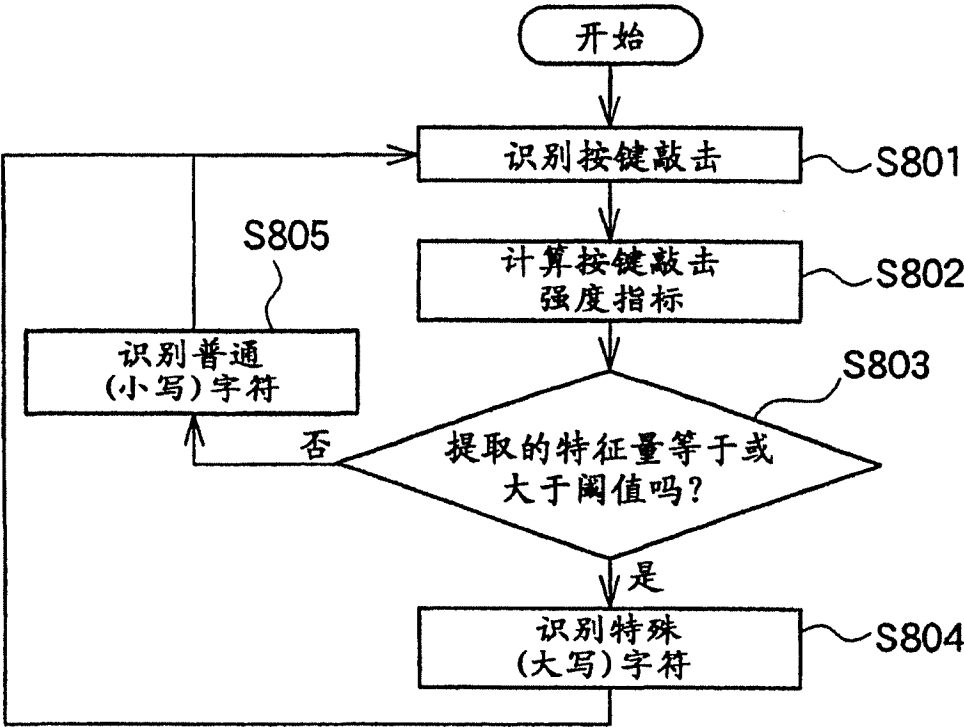


图 31

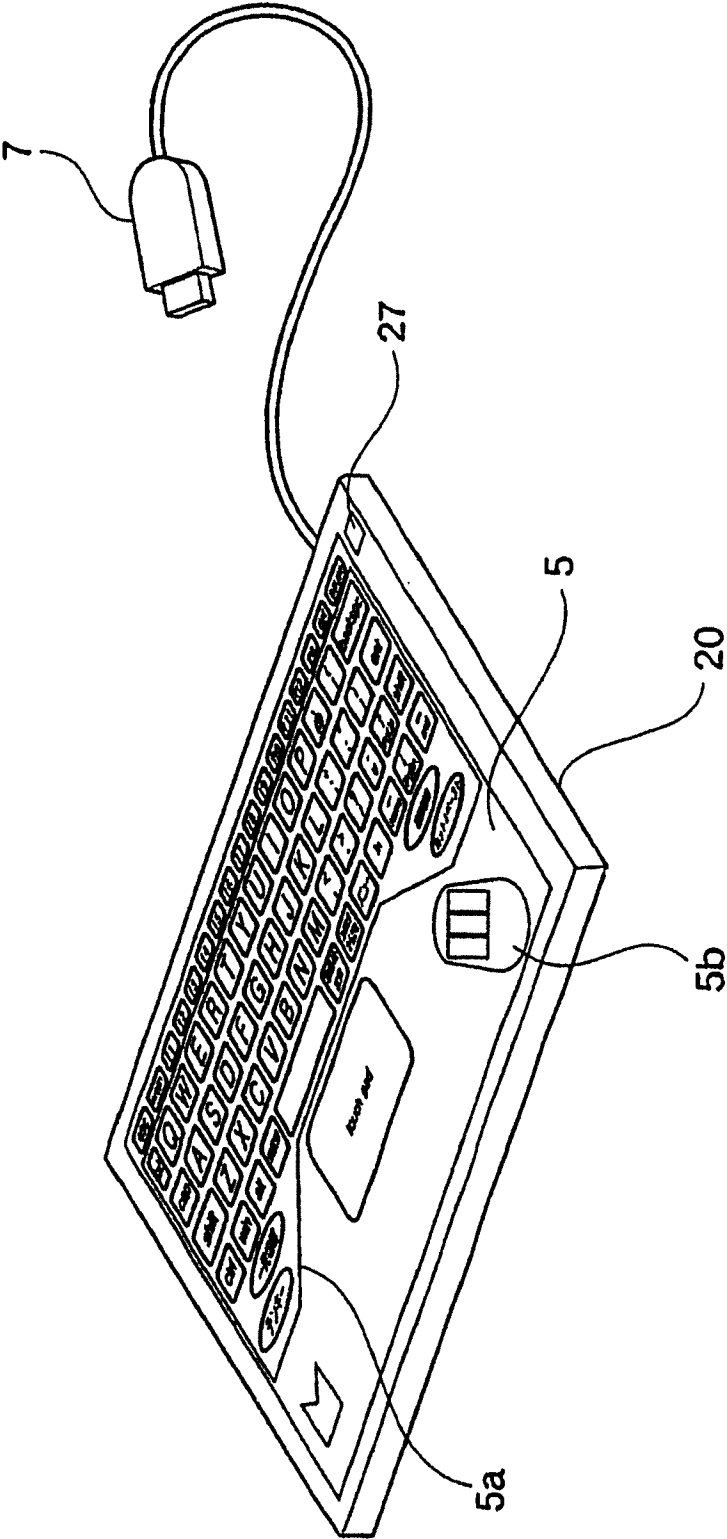


图 32

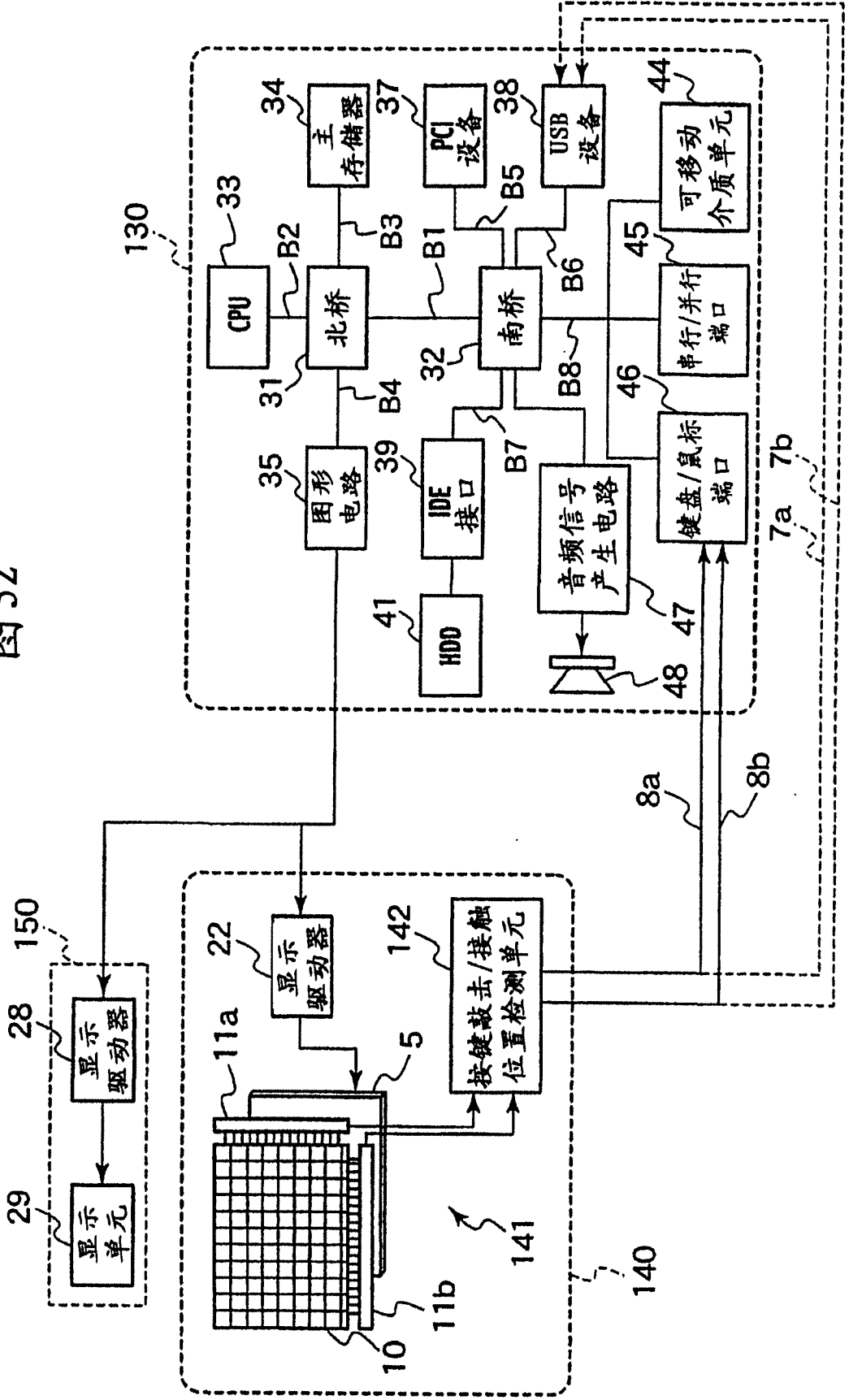


图33

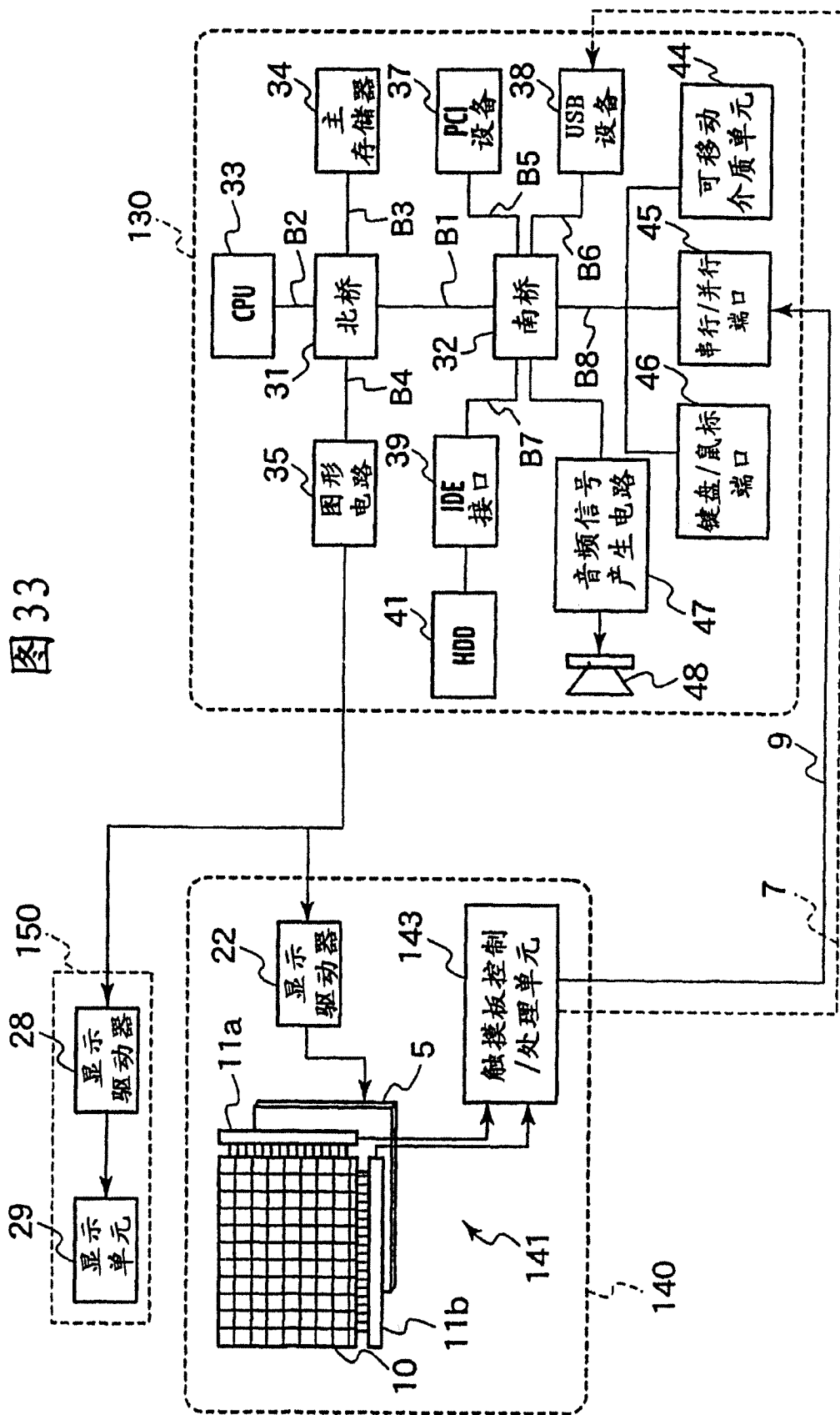


图 34

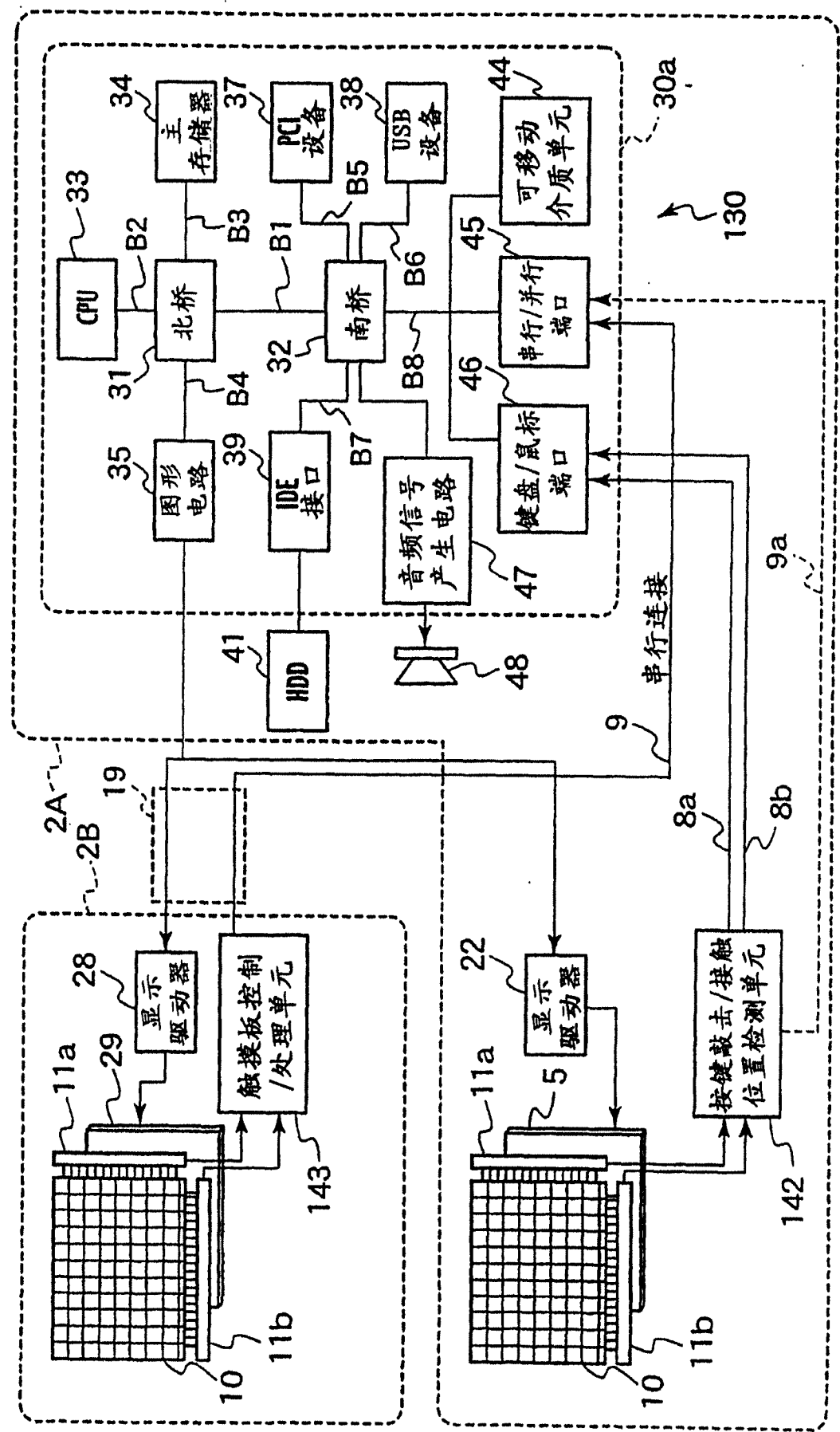
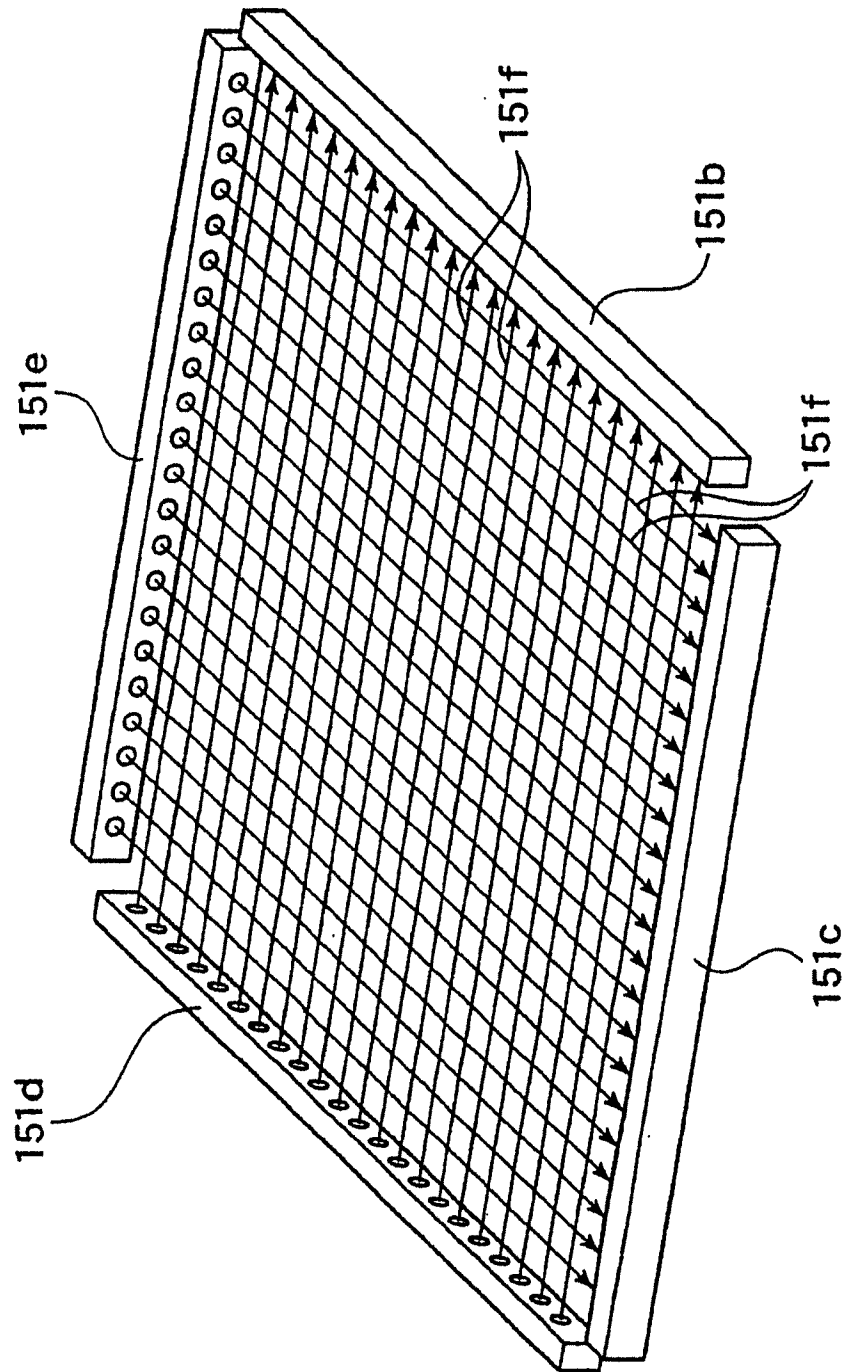


图 35



Electronic Acknowledgement Receipt

EFS ID:	35165580
Application Number:	16260879
International Application Number:	
Confirmation Number:	3220
Title of Invention:	INFORMATION PROCESSING APPARATUS
First Named Inventor/Applicant Name:	Masaaki YAMADA
Customer Number:	20277
Filer:	Bernard P. Codd/Marc Cunningham
Filer Authorized By:	Bernard P. Codd
Attorney Docket Number:	093265-0063
Receipt Date:	15-FEB-2019
Filing Date:	29-JAN-2019
Time Stamp:	14:48:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
------------------------	----

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)	IDS.pdf	1035893	no	6
			d9942d6412a7ea10780ac90a9be13a85834ae4f9		

Warnings:

Information:					
2	Foreign Reference	JPH05100809.pdf	886831	no	17
			b8a0eb0e8b2977a5641a7d359917029ce2b239f1		
Warnings:					
Information:					
3	Foreign Reference	WO2010104015.pdf	2235837	no	53
			1d34241ba002cd06986427a8e12904e976dcf81d		
Warnings:					
Information:					
4	Foreign Reference	CN1567288.pdf	418228	no	14
			4f058aa91111259036b54a2d45c4c2acd1dc46c		
Warnings:					
Information:					
5	Foreign Reference	CN1755604.pdf	3228542	no	73
			ab17839169e159eb963c03ed5d584d6bafffb0b7		
Warnings:					
Information:					
6	Non Patent Literature	Numabe.pdf	289513	no	4
			6502f396acd16e829668de82a31d1a3737dec565		
Warnings:					
Information:					
7	Non Patent Literature	Eleccion.pdf	1461969	no	10
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Warnings:					
Information:					
8	Non Patent Literature	Holz.pdf	895104	no	10
			601a718fc2ee6eb3c9c3fe7aca80adc6f4cb9f9d		
Warnings:					
Information:					

9	Non Patent Literature	Wang.pdf	883033	no	10
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Warnings:					
Information:					
10	Non Patent Literature	Saevanee.pdf	325575	no	5
			8343f198c91a4a494689b721c9c1da089016d226		
Warnings:					
Information:					
11	Non Patent Literature	Harrison.pdf	801347	no	8
			6c5c08e0062c8d3ce739bd071d2441cb2ed2d07d		
Warnings:					
Information:					
Total Files Size (in bytes):			12461872		
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.					

REISSUE PATENT APPLICATION TRANSMITTAL

Address to:

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

Attorney Docket No.	093265-0063
First Named Inventor	Masaaki YAMADA
Original Patent Number	8,654,093
Original Patent Issue Date (Month/Day/Year)	February 18, 2014
Express Mail Label No.	

APPLICATION FOR REISSUE OF:
(Check applicable box)

☒ Utility Patent

☐ Design Patent

☐ Plant Patent

APPLICATION ELEMENTS (37 CFR 1.173)

1. ☒ Fee Transmittal Form (PTO/SB/56)
2. ☐ Applicant asserts small entity status. See 37 CFR 1.27
3. ☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Applicant must attach form PTO/SB/15A or B or equivalent.
4. ☒ Specification and Claims in double column copy of patent format
(amended, if appropriate)
5. ☒ Drawing(s) (proposed amendments, if appropriate)
6. ☐ Reissue Oath/Declaration or Substitute Statement
(37 CFR 1.175) (PTO/AIA/05, 06, or 07)
7. ☒ Application Data Sheet NOTE: Benefit claims under 37 CFR 1.78
and foreign priority claims under 37 CFR 1.55 MUST be set forth in
an Application Data Sheet (ADS).
8. ☒ Original U.S. Patent currently assigned? ☒ Yes ☐ No
(If Yes, check applicable box(es))
 - ☐ Written Consent of all Assignors (PTO/AIA/53)
 - ☐ 37 CFR 3.73(c) Statement (PTO/AIA/96)
9. ☐ CD-ROM or CD-R in duplicate, Computer Program (Appendix) or
large table
 - ☐ Landscape Table on CD
10. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, items a. - c. are required)
 - a. ☐ Computer Readable Form (CRF)
 - b. ☐ Specification Sequence Listing on:
 - i. ☐ CD-ROM (2 copies) or CD-R (2 copies); or
 - ii. ☐ Paper
 - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

11. ☐ Statement of status and support for all changes to
the claims. See 37 CFR 1.173(c).
 12. ☒ Power of Attorney
 13. ☒ Information Disclosure Statement (IDS)
PTOSB/08 or PTO-1449
 - ☐ Copies of citations attached
 14. ☐ English translation of Reissue Oath/Declaration
(if applicable)
 15. ☐ Return Receipt Postcard (MPEP § 503)
(Should be specifically itemized)
 16. ☒ Preliminary Amendment (37 CFR 1.173; MPEP § 1453)
 17. ☐ Other:
- ☐ This is a continuation reissue or divisional reissue
application (i.e., a second or subsequent reissue application
for the same issued patent). (Check box if applicable.)

18. CORRESPONDENCE ADDRESS

☒ The address associated with Customer Number: 20277 OR ☐ Correspondence address below

Name					
Address					
City	State	Zip Code			
Country	Telephone				
Email					
Signature	/Tomoki Tanida/ <i>BPC Reg. No. 46,479</i>		Date	January 29, 2019	
Name (Print/Type)	Tomoki Tanida		Registration No.	60,453	

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	093265-0063
		Application Number	
Title of Invention	INFORMATION PROCESSING APPARATUS		
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.)
--

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Masaaki		YAMADA		
Residence Information (Select One) US Residency • Non US Residency Active US Military Service					
City	Yokohama		Country of Residence ⁱ	JP	

Mailing Address of Inventor:

Address 1	c/o Hitachi, Ltd., Intellectual Property Group				
Address 2	6-1, Marunouchi 1-chome, Chiyoda-ku				
City	Tokyo	State/Province			
Postal Code	100-8220	Country ⁱ	JP		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					

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	20277		
Email Address	ipdocketmwe@mwe.com	Add Email	Remove Email

Application Information:

Title of the Invention	INFORMATION PROCESSING APPARATUS		
Attorney Docket Number	093265-0063	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	17	Suggested Figure for Publication (if any)	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	093265-0063
		Application Number	
Title of Invention	INFORMATION PROCESSING APPARATUS		

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). Either enter 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	20277		

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.					
Prior Application Status	Patented				Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	reissued of	13/366983	2012-02-06	8654093	2014-02-18
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 priority to a foreign application. 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(d). When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX) ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(h)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).			
Remove			
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Access Code ⁱ (if applicable)
2011-025576	JP	2011-02-09	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	093265-0063
		Application Number	
Title of Invention	INFORMATION PROCESSING APPARATUS		

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

Authorization to Permit Access:

Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	093265-0063
		Application Number	
Title of Invention	INFORMATION PROCESSING APPARATUS		

Applicant	1 Remove		
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section. Clear			
☒ Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor	
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor :			
If the Applicant is an Organization check here. ☒			
Organization Name	MAXELL, LTD.		
Mailing Address Information For Applicant:			
Address 1	1 Koizumi, Oyamazaki, Oyamazaki-cho, Otokuni-gun		
Address 2			
City	Kyoto	State/Province	
Country	JP	Postal Code	
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Assignee	1 Remove		
Complete this section only if non-applicant assignee information is desired to be included on the patent application publication in accordance with 37 CFR 1.215(b). Do not include in this section an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest), as the patent application publication will include the name of the applicant(s).			
If the Assignee is an Organization check here. ☐			

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	093265-0063
		Application Number	
Title of Invention	INFORMATION PROCESSING APPARATUS		

Prefix	Given Name	Middle Name	Family Name	Suffix

Mailing Address Information For Non-Applicant Assignee:

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:

Remove

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

Signature	/Tomoki Tanida/		Date (YYYY-MM-DD)	2019-01-29
First Name	Tomoki	Last Name	Tanida	Registration Number
				60453

Additional Signature may be generated within this form by selecting the Add button.

Add

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.**

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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.
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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.
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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.

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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Assigned
Filing Date	January 29, 2019
First Named Inventor	Masaaki YAMADA
Title	INFORMATION PROCESSING APPARATUS
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	093265-0063

SIGNATURE of Applicant or Patent Practitioner

Signature	/Tomoki Tanida/ <i>APC Reg. No. 46,429</i>	Date (Optional)	January 29, 2019
Name	Tomoki Tanida	Registration Number	60,453
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.



*Total of 1 forms are submitted.

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出願人による委任状
POWER OF ATTORNEY BY APPLICANT

私はここに、添付の伝送書もしくは下記枠内で特定された出願に対して、現時点より前に与えられたすべての委任状を破棄します。
I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

出願番号 Application Number	出願日 Filing Date

(注記: PTO/AIA/82Aに同じ情報が明記されている場合、上の枠内は空欄でも可)
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I am the Applicant (If the Applicant is a juristic entity, list the Applicant name in the box):

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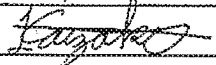
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氏名 Name	Kazuhiro Kaizaki		
役職 Title	Vice President		

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(12) **United States Patent**
Yamada

(10) **Patent No.:** **US 8,654,093 B2**
(45) **Date of Patent:** **Feb. 18, 2014**

(54) **INFORMATION PROCESSING APPARATUS**

(56) **References Cited**

(75) Inventor: **Masaaki Yamada**, Yokohama (JP)

U.S. PATENT DOCUMENTS

(73) Assignee: **Hitachi Consumer Electronics Co., Ltd.**, Tokyo (JP)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 188 days.

JP 5-100809 4/1993
JP 2005-202527 7/2005

* cited by examiner

(21) Appl. No.: **13/366,983**

Primary Examiner — Michael Faragalla

(22) Filed: **Feb. 6, 2012**

(74) Attorney, Agent, or Firm — McDermott Will & Emery LLP

(65) **Prior Publication Data**
US 2012/0200515 A1 Aug. 9, 2012

(57) **ABSTRACT**

(30) **Foreign Application Priority Data**
Feb. 9, 2011 (JP) 2011-025576

An information processing apparatus includes a touch panel which displays pieces of identification information including letters, figures, and symbols and detects a contact of the panel with a finger of a user or other object. When the touch panel detects the contact of the panel, a detection unit specifies identification information of one or more of the multiple pieces of identification information displayed on the touch panel, indicated by a position at which the contact in question occurred. The detection unit also detects an area of part of the panel where the contact occurred. A storage unit stores reference identification information and a reference area range. A control unit performs particular processing upon matching of the detected identification information with the stored reference identification information and the area of the contact detected by the detection unit falling within the stored reference area range.

(51) **Int. Cl.**
G06F 3/041 (2006.01)
G09G 5/10 (2006.01)
(52) **U.S. Cl.**
USPC **345/173; 345/690**
(58) **Field of Classification Search**
USPC 345/173, 175, 178, 650, 690
See application file for complete search history.

7 Claims, 17 Drawing Sheets

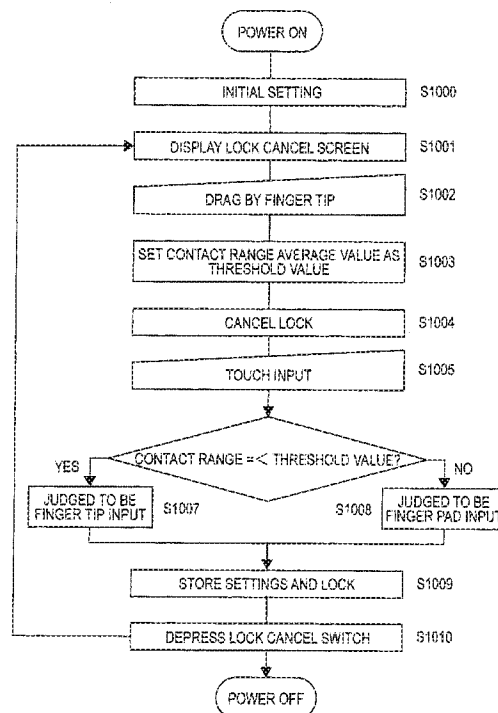


FIG. 1A

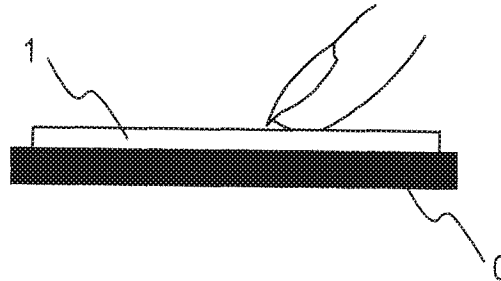


FIG. 1B

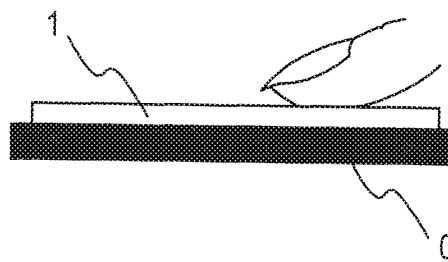


FIG. 2

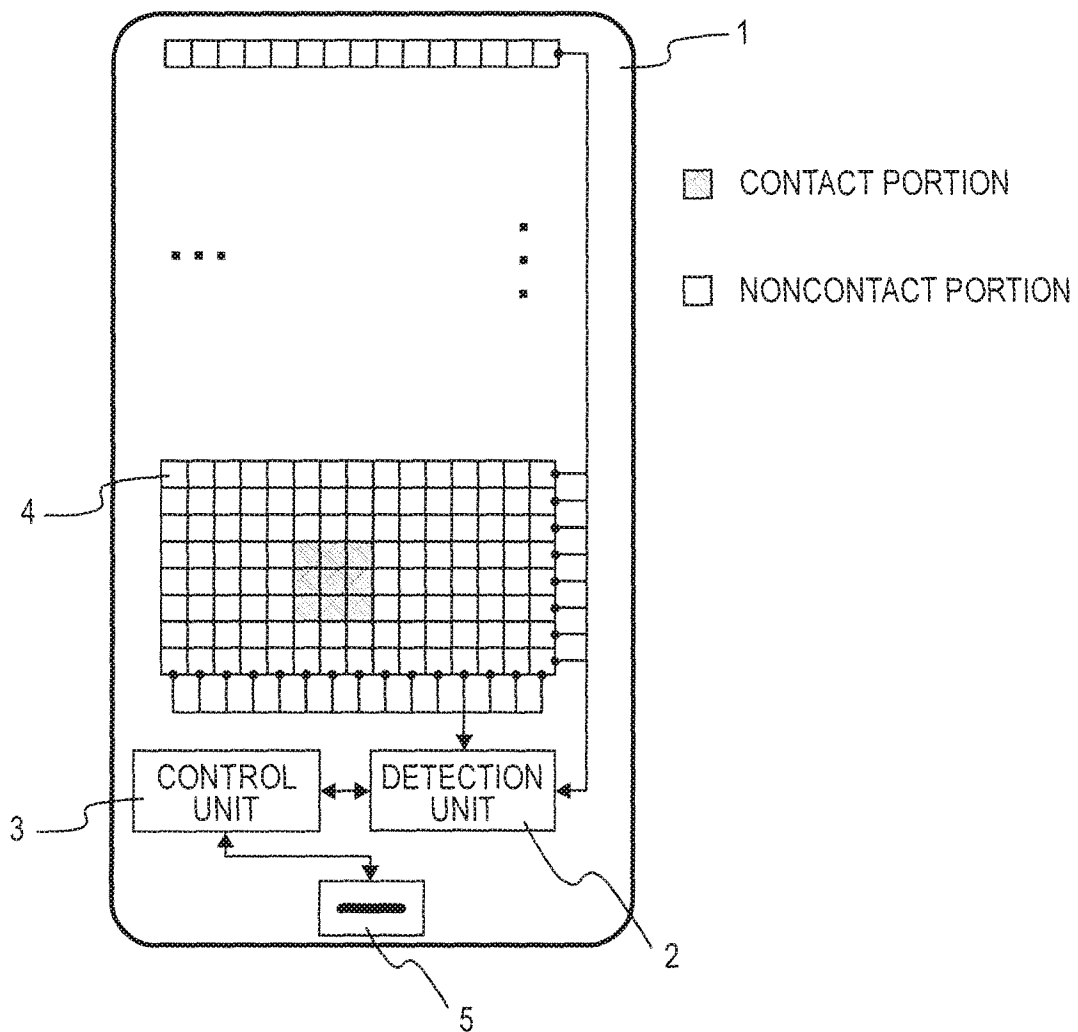


FIG. 3

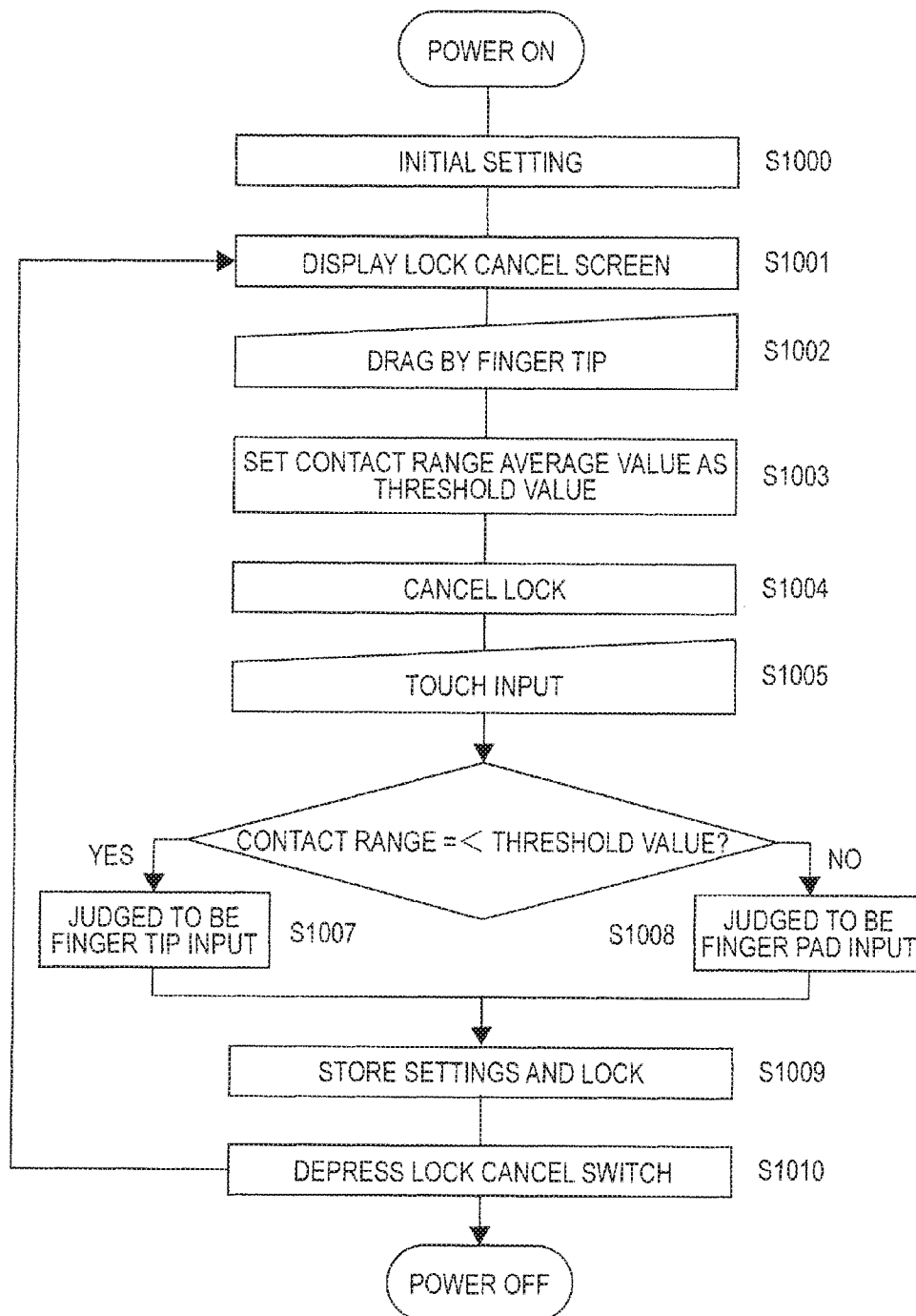


FIG. 4B

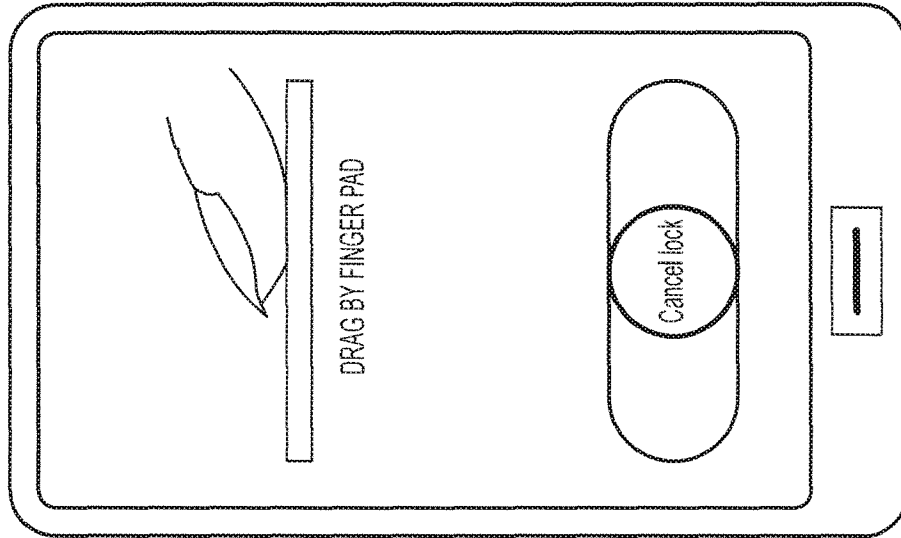


FIG. 4A

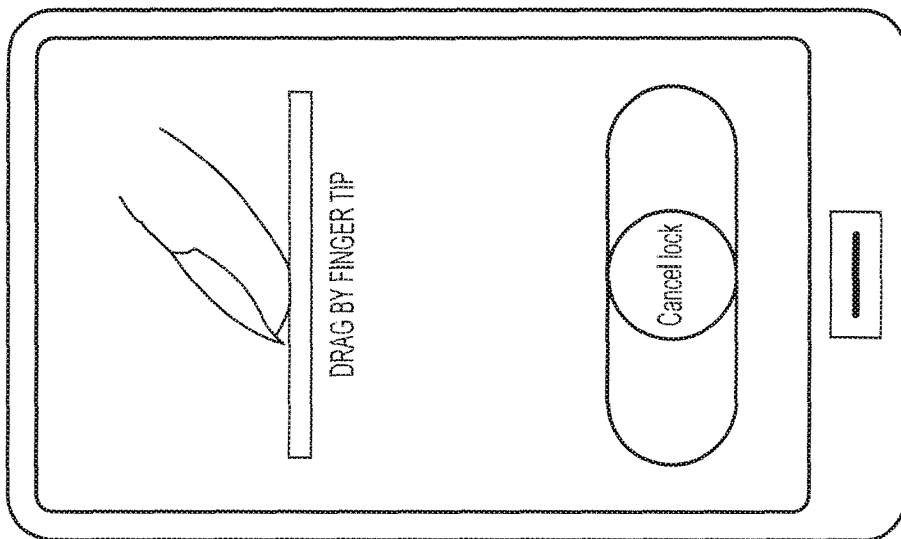
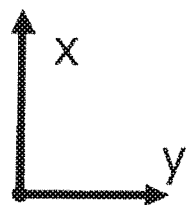
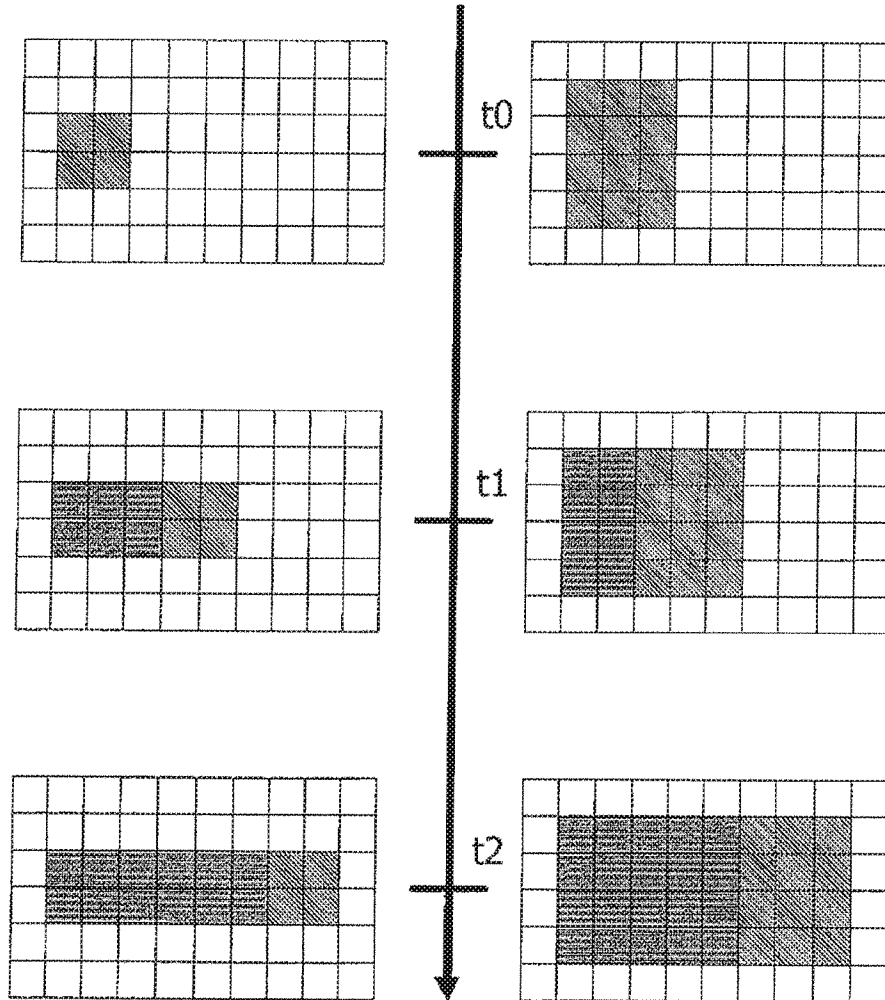


FIG. 5A

FIG. 5B

FINGER TIP CALIBRATION

FINGER PAD CALIBRATION



-  SENSORS BEING TOUCHED
-  SENSORS TOUCHED PREVIOUSLY
-  SENSORS NOT TOUCHED

FIG. 6A

FIG. 6B

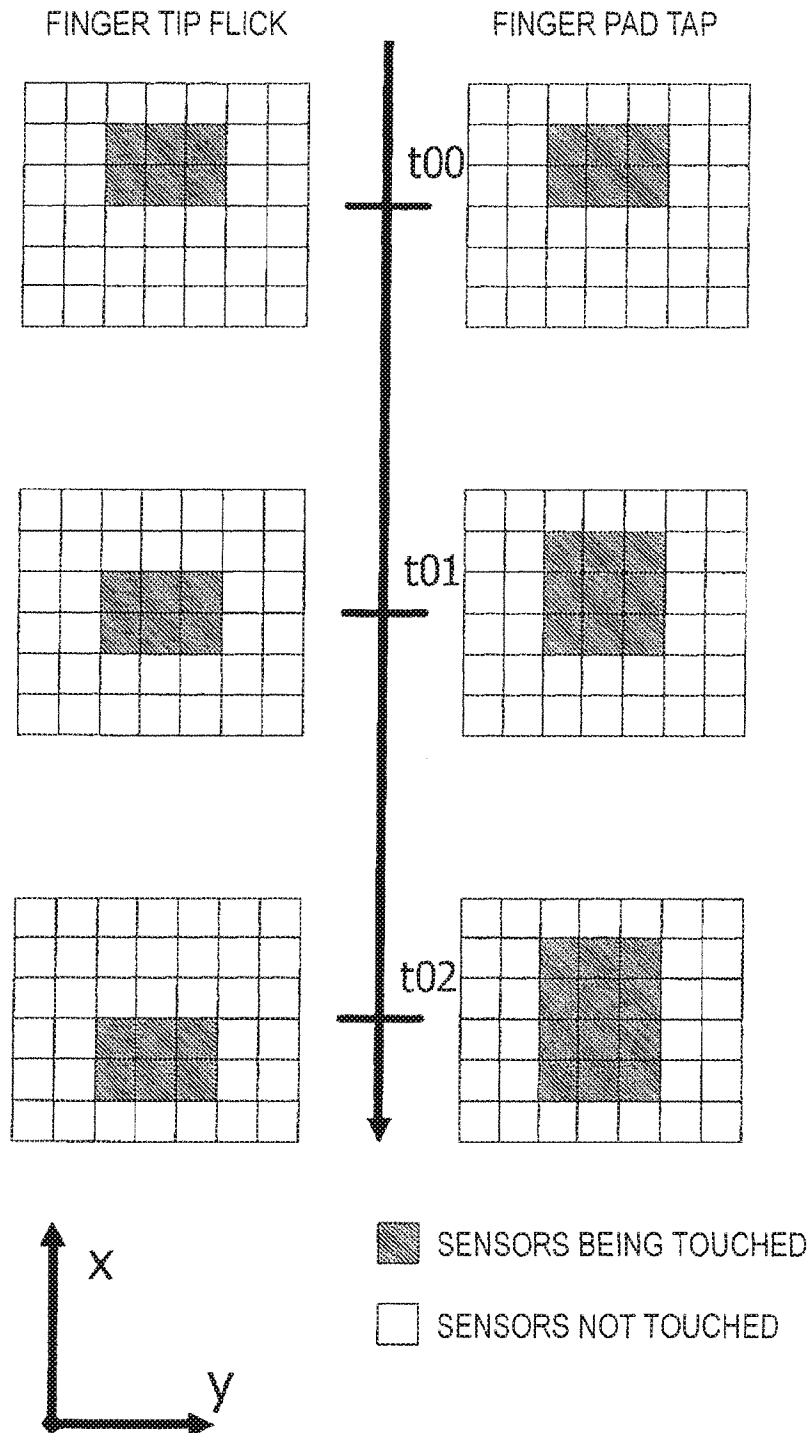


FIG. 7B

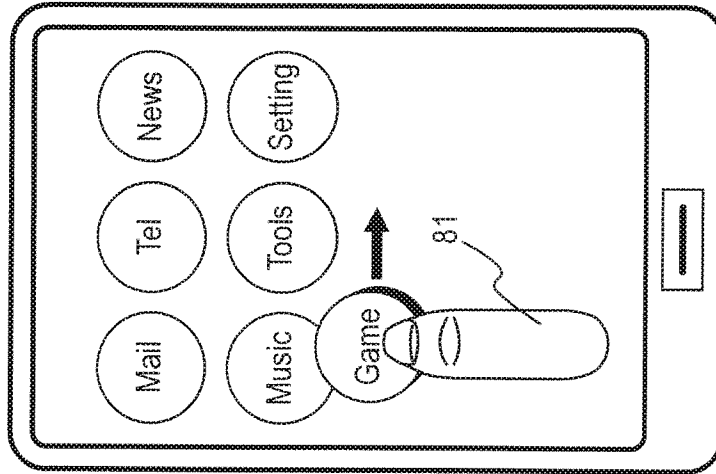


FIG. 7A

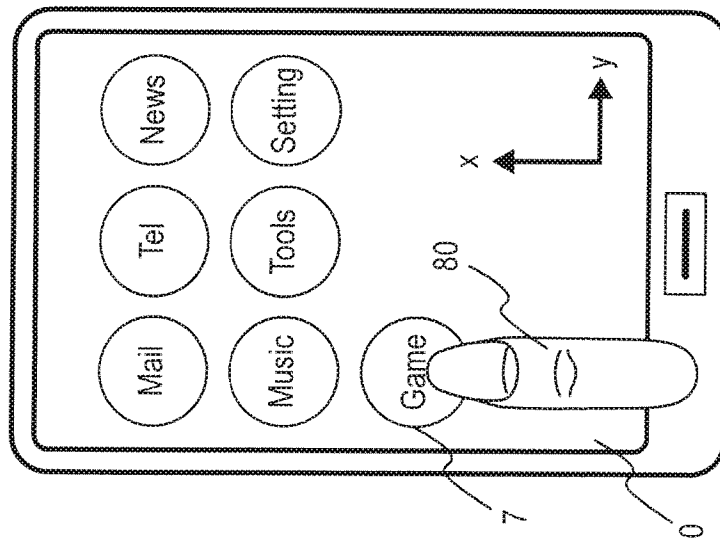


FIG. 7C

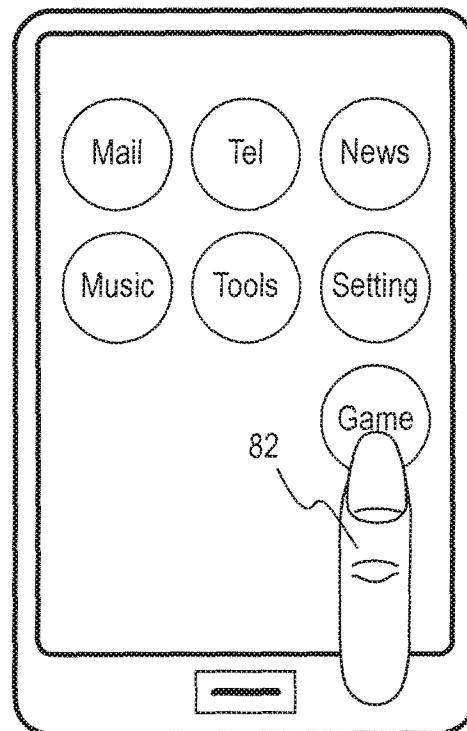
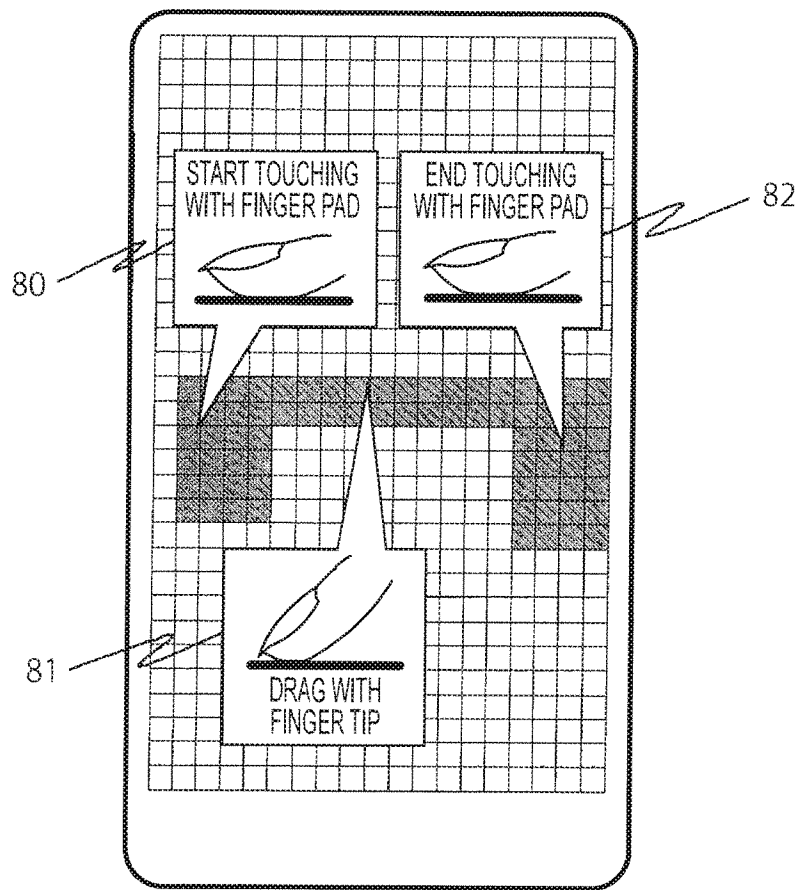


FIG. 8



CONTACT PORTION

NONCONTACT PORTION

FIG. 9

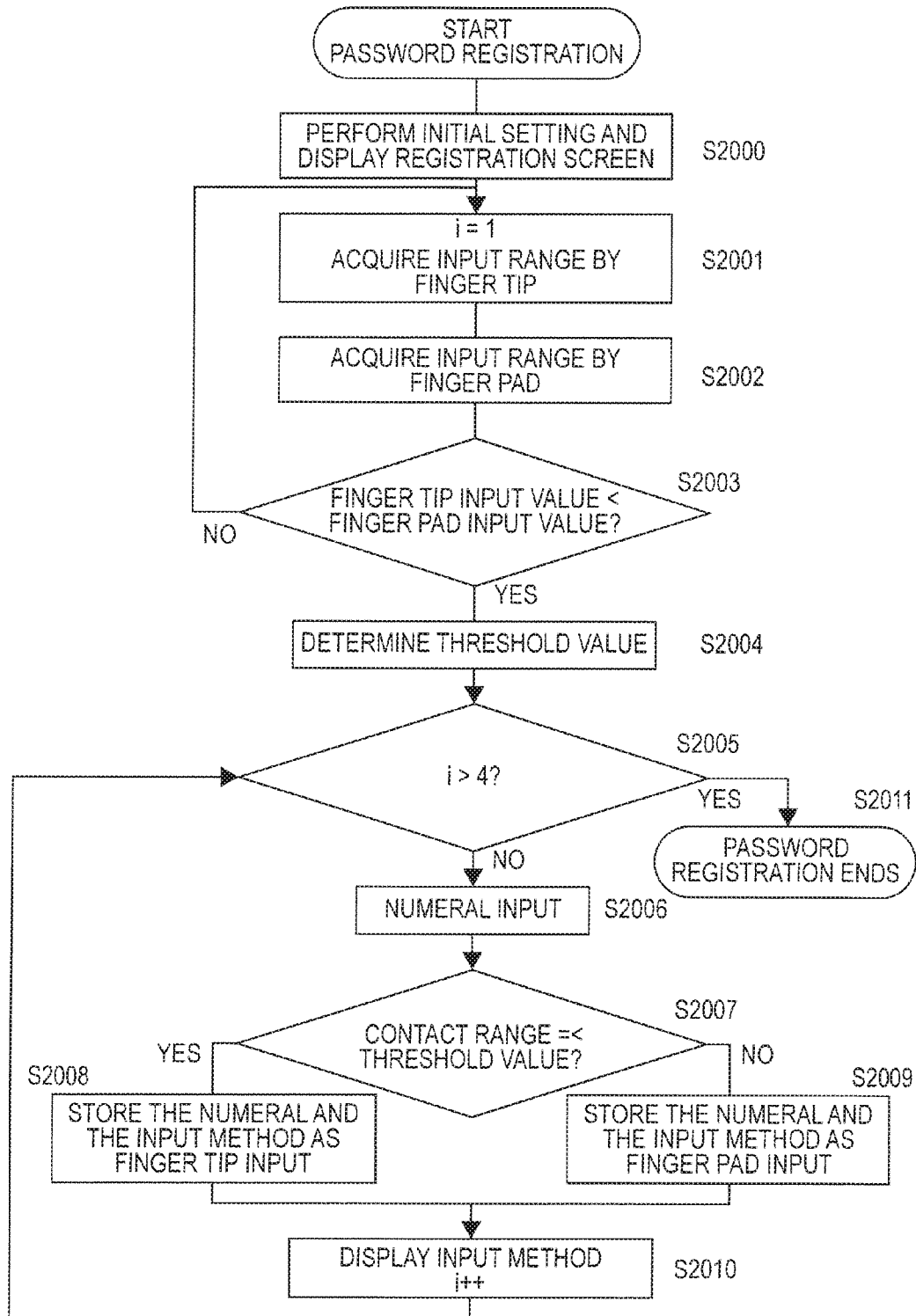


FIG. 10B

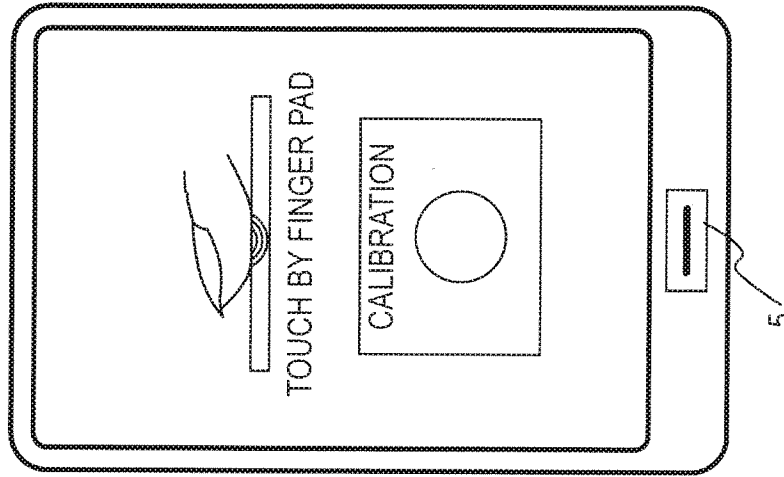


FIG. 10A

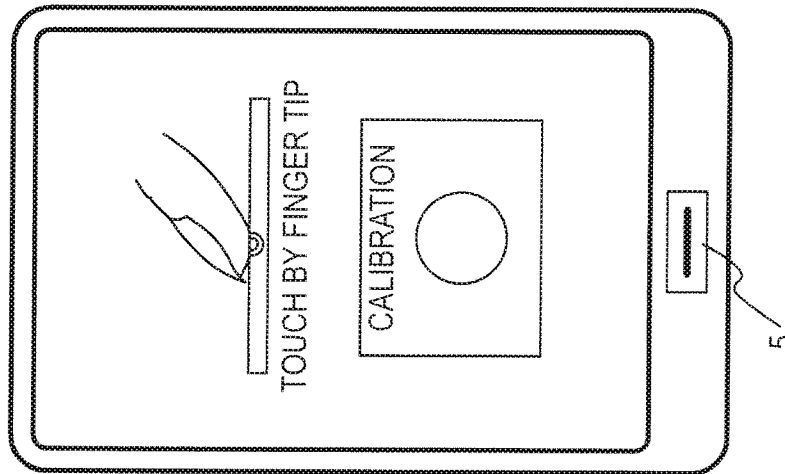


FIG. 11A

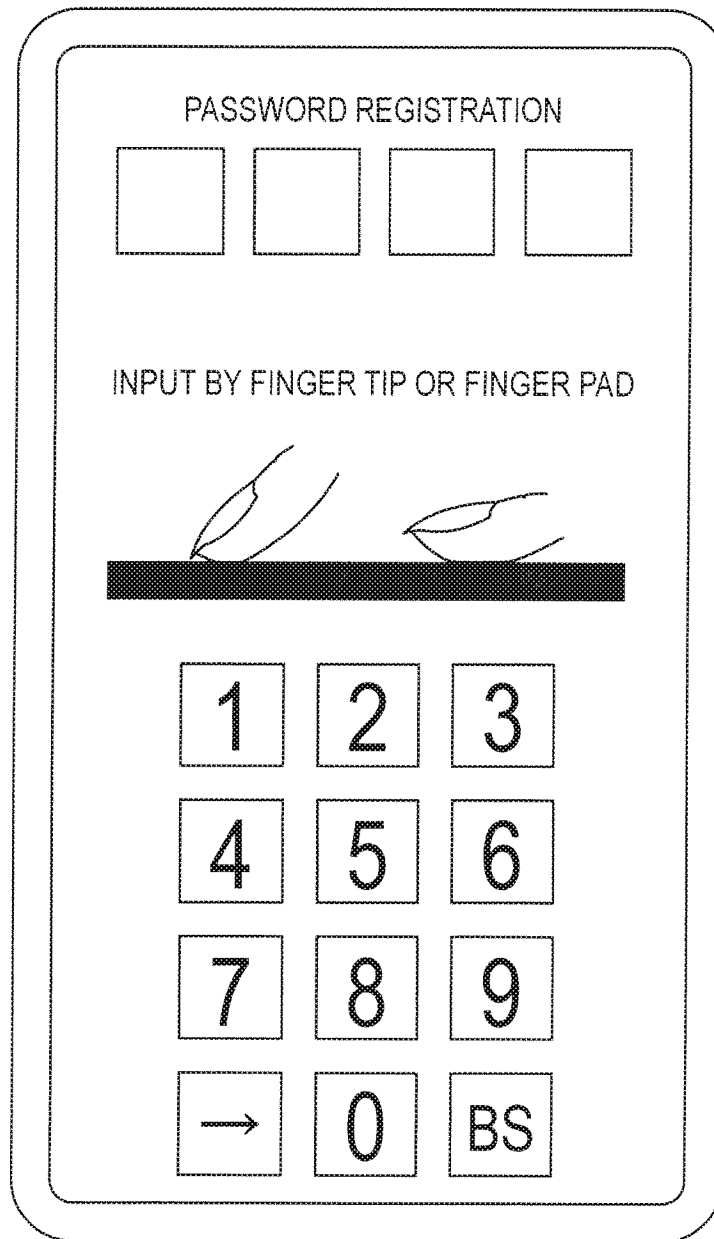


FIG. 11B

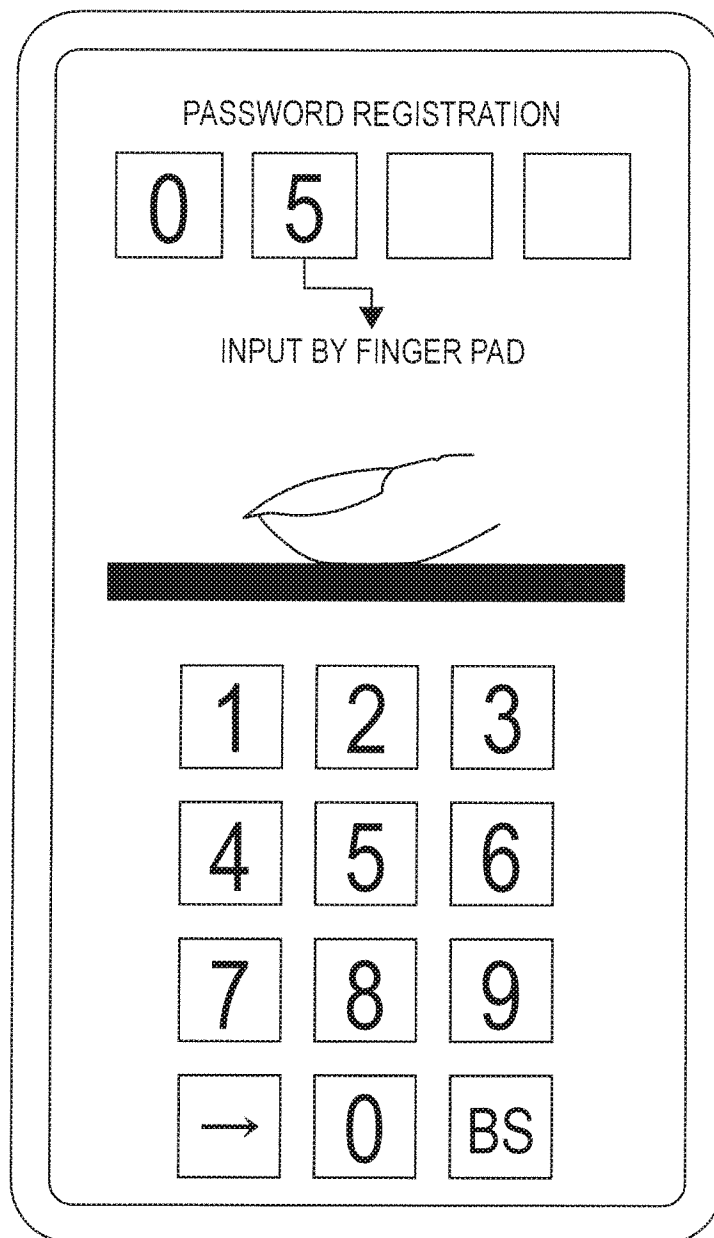


FIG. 11C

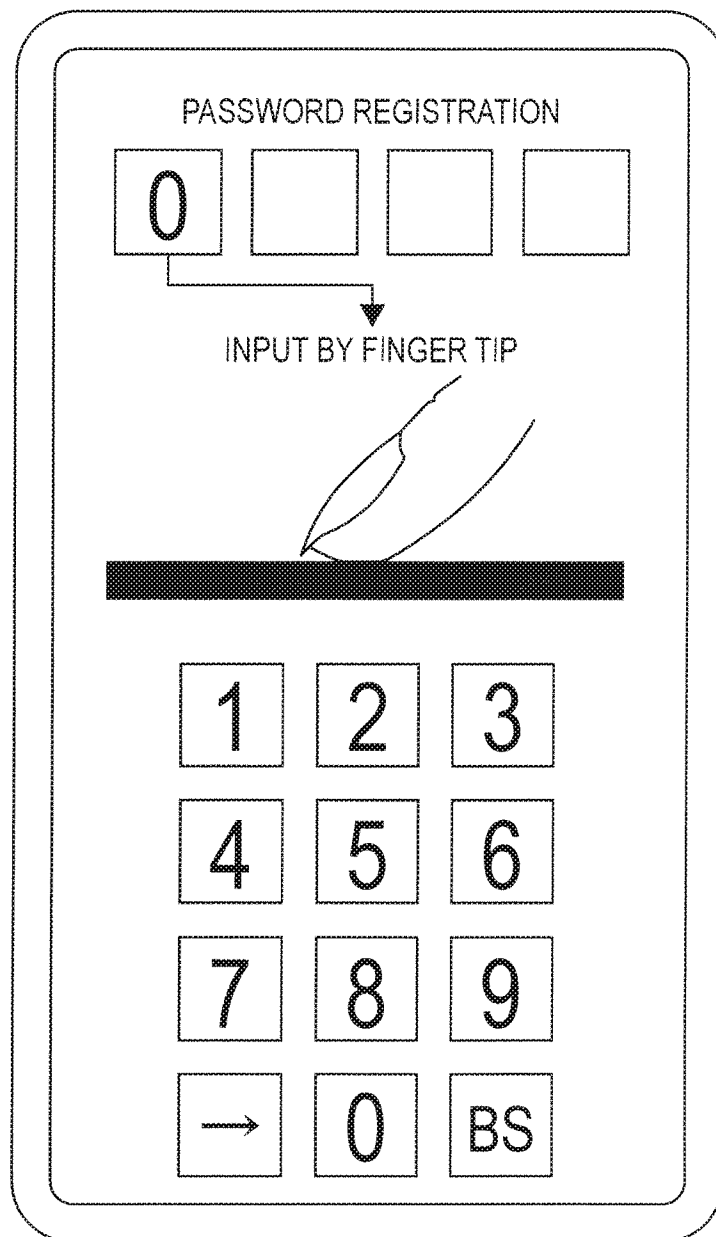


FIG. 12A

DIGIT	1	2	3	4
PASSWORD	0	5	2	8
INPUT METHOD	FINGER TIP	FINGER PAD	FINGER PAD	FINGER PAD

FIG. 12B

DIGIT		1	2	3	4	OPERATION
PASSWORD		0	5	2	8	—
INPUT METHOD	1	FINGER TIP	FINGER PAD	FINGER PAD	FINGER PAD	WAITING SCREEN
	2	FINGER TIP	FINGER TIP	FINGER TIP	FINGER TIP	MAIL CREATING SCREEN
	3	FINGER PAD	FINGER TIP	FINGER PAD	FINGER TIP	APPLICATION STARTING

FIG. 13

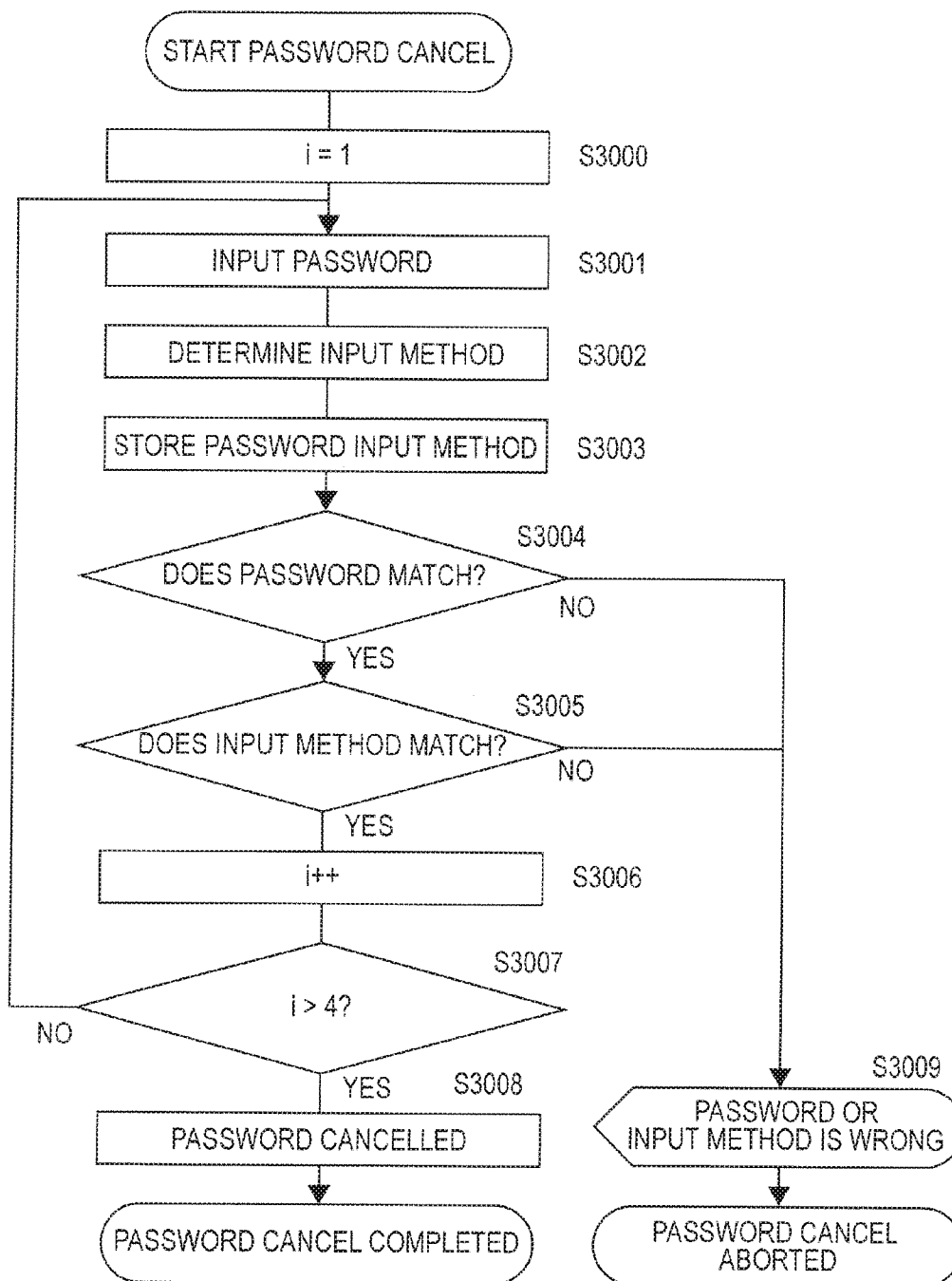
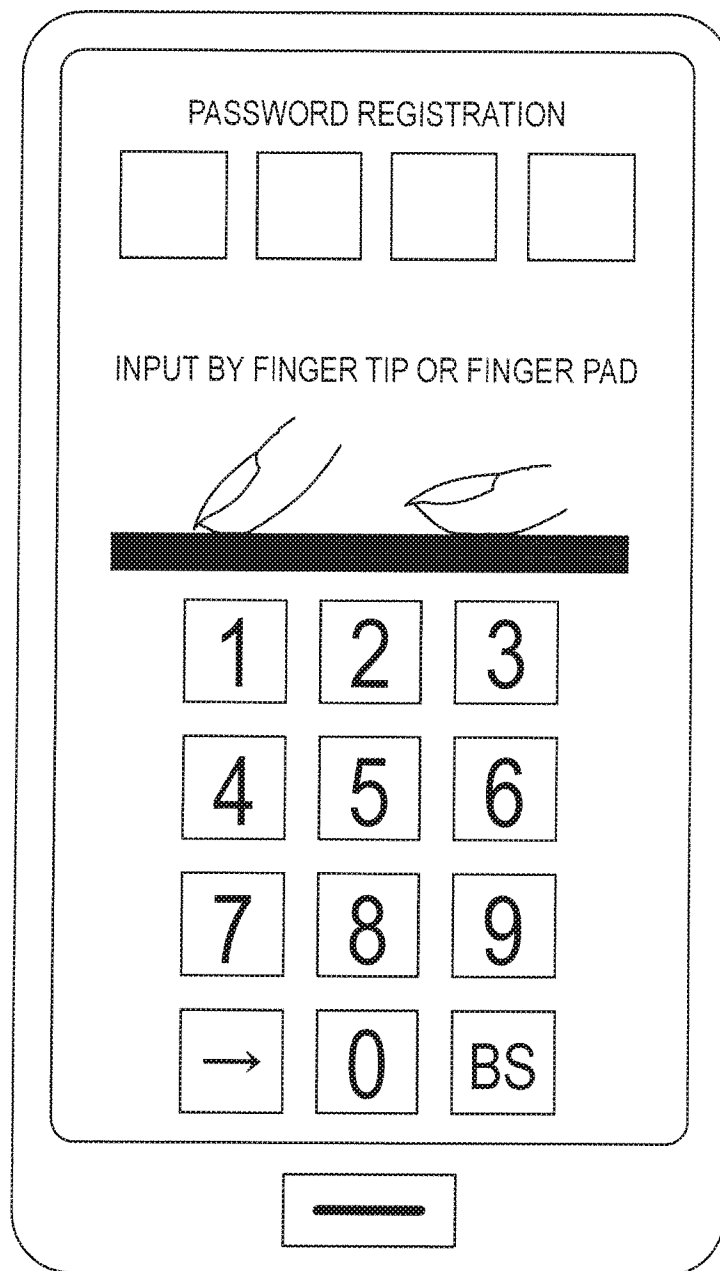


FIG. 14



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INFORMATION PROCESSING APPARATUS

CLAIMS OF PRIORITY

The present application claims priority from Japanese patent application serial no. JP2011-025576, filed on Feb. 9, 2011, the content of which is hereby incorporated by reference into this application.

BACKGROUND OF THE INVENTION

The present invention relates to information processing apparatuses.

JP-A-05-100809 discloses art related to the technical field of the present invention. The publication describes "An information processing apparatus including a touch panel device at least comprising: a physical type of an object; display position information on a display; file information where a status of the object is set; a display information table 1 storing display data of the object that includes a name of a file in a normal state and a name of the file in a special state (reversed display); and touch panel information 2 including a touch position coordinate and touch pressure information. A physical operation decided by a corresponding relation between physical information indicated by the display information table 1 and physical information indicated by the touch panel information 2 is given to the object to display it."

Recently, information processing apparatuses for portable usage have become multi-functioned and ease of use thereof is particularly required.

An object of the present invention is to provide an information processing apparatus that offers improved convenience to users.

SUMMARY OF THE INVENTION

To solve the foregoing problem, an aspect of the present invention provides an information processing apparatus comprising: a touch panel which displays a plurality of pieces of identification information including letters, figures, and symbols, and for detecting a contact of the panel with a finger of a user or other objects; a detection unit, when the touch panel detects a contact of the panel with the object, which species identification information indicated by a position of the contact at which the contact in question occurred, of the multiple pieces of identification information displayed on the touch panel, and which detects an area of part where the contact occurred; a storage unit which stores reference identification information and a reference area range; a determination unit which determines whether the identification information detected by the detection unit matches the reference identification information stored in the storage unit and whether the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit; and a control unit which performs particular processing when the determination unit determines that the identification information detected by the detection unit matches the reference identification information stored in the storage unit and the area of the contact detected by the detecting unit falls within the reference area range stored in the storing unit.

By employing such system, an information processing apparatus including a touch panel can be improved in usability.

BRIEF DESCRIPTION OF DRAWINGS

The present invention will be described hereinafter with reference to the accompanying drawings.

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FIG. 1A is a schematic illustration of a user touching a touch panel 1 with a finger tip to make an input.

FIG. 1B is a schematic illustration of a user touching the touch panel 1 with a finger pad to make an input.

FIG. 2 is an illustration showing an example of the internal configuration of a portable terminal 0 including the touch panel 1.

FIG. 3 is a flow chart showing a lock cancellation process of the portable terminal 0.

FIG. 4A is an illustration showing a typical screen image displayed during when the portable terminal 0 is to be unlocked by dragging with a finger tip.

FIG. 4B is an illustration showing a typical screen image displayed during when the portable terminal 0 is to be unlocked by dragging with a finger pad.

FIGS. 5A and 5B are illustrations showing schematically states of sensors 4 at various timing during lock cancellation.

FIGS. 6A and 6B are illustrations showing a method for distinguishing between a finger tip flicking and a finger pad tapping.

FIG. 7A is an illustration showing one state during an icon being moved; the state before the move has started.

FIG. 7B is an illustration showing one state during the icon being moved; the state when the icon is being moved.

FIG. 7C is an illustration showing one state during the icon being moved; the state after the move has finished.

FIG. 8 is an illustration showing schematically the sensors 4 when the icon is moved.

FIG. 9 is a flow chart for password registration.

FIG. 10A is an illustration showing a typical screen image displayed during calibration to prompt the user to make a finger tip contact.

FIG. 10B is an illustration showing a typical screen image displayed during calibration to prompt the user to make a finger pad contact.

FIG. 11A is an illustration showing a screen that prompts the user to register a password.

FIG. 11B is an illustration showing a screen displayed during password registration to inform the user that a finger pad input has been made.

FIG. 11C is an illustration showing a screen displayed during password registration to inform the user that a finger tip input has been made.

FIG. 12A is a table showing data composed of a password and a corresponding input method.

FIG. 12B is a table showing data composed of one password and a plurality of corresponding input methods.

FIG. 13 is a flow chart for password cancellation.

FIG. 14 is an illustration showing a screen that prompts the user to cancel a password.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[First Embodiment]

Preferred embodiments of the present invention will be described below with reference to the accompanying drawings.

FIGS. 1A and 1B are illustrations showing methods by which a user makes a desired input in a portable terminal 0 according to a first preferred embodiment of the present invention. The portable terminal 0 shown in FIGS. 1A and 1B includes a touch panel 1 having a touch sensor function. FIG. 1A is an image of a user making input by touching the touch panel 1 with his or her finger tip. The input using one's finger tip is characterized in that an area of contact (hereinafter referred also to as a "contact range") between the finger of the

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user and the touch panel 1 is small. This operation by the user will hereinafter be referred to as a finger tip input. FIG. 1B schematically shows an image of a user making input by touching the touch panel 1 with his or her finger pad. The input using one's finger pad is characterized in that the contact range of the finger and the touch panel 1 is wider than that of the finger tip input. This operation by the user will hereinafter be referred to as a finger pad input.

FIG. 2 is an illustration showing a typical internal arrangement of the portable terminal 0. Reference numeral 1 denotes a touch panel that includes a group of sensors or a sensor 4, a liquid crystal panel, and a glass panel. When the user's finger contacts with the touch panel, capacitance of the sensor 4 changes and the sensor 4 outputs a signal according to the change. The liquid crystal panel displays numerals, letters, and the like. The glass panel is for protecting the sensor 4, etc. Reference numeral 2 denotes a contact range detection unit that detects the position and the contact range of a contact based on the signal output from the sensor 4. Reference numeral 3 denotes a control unit for controlling elements of the touch panel 1. The control unit 3 includes an arithmetic section, a counter, a determination unit which determines condition in accordance with input information into the control unit 3, and a storage unit which stores various types of data. Reference numeral 4 denotes, as mentioned, a group of sensors or a sensor whose capacitance varies upon contact with the user's finger. Portions shaded with diagonal lines represent sensors 4 that are responding to the contact with the finger. The blank portions represent sensors 4 that are not contacting with the finger and not responding. Reference numeral 5 denotes a button switch which the user pushes for various operations such as standby release or returning, advancing.

The way of calibration and the usage method for cancelling the lock or unlocking the portable terminal 0 according to the first embodiment will be described below with reference to FIG. 3 showing a flow chart, FIGS. 4A and 4B showing lock cancellation display screens, and FIGS. 5A and 5B showing states of the sensor 4 at various timing during lock cancellation.

Among types of operation performed by the user on the portable terminal 0 are tapping, dragging, flicking, and pinching. Tapping is an operation which the user touches one point of the screen with a finger for a moment on the touch panel 1. Dragging is an operation which the user moves his or her finger over the screen of the touch panel 1 while the finger is in contact therewith. Flicking is an operation which the user quickly slides his or her finger on the screen of the touch panel 1 while touching it. Pinching is an operation which the user touches two points of the screen of the touch panel 1 with two fingers and changes the distance between the two points.

A series of operations from start-up of the portable terminal 0, calibration, and to turn-off of the portable terminal 0 will be next described. The term calibration used herein refers to an operation of setting a threshold value that is used for determining a contact range.

The power of the portable terminal turns on by pressing the button switch for a certain time. Then, the control unit 3 starts a program, adjusts the sensors, initializes the threshold value, and performs initial settings for screen display and other factors (S1000). After the initial setting procedure, the control unit 3 performs control to display lock cancel screen on the touch panel 1 (S1001). As can be seen in FIG. 4A, a lock cancel icon is present in the lock cancel screen which can be dragged in a y direction and a -y direction with a finger tip. The control unit 3 holds until the user drags the lock cancel icon with a finger tip (S1002).

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FIG. 5A is a schematic view showing states of the sensor 4 at various timing during when the user drags the icon with a finger tip in the y direction for unlocking. In FIG. 5A, portions shaded with diagonal lines denote sensors 4 that are responding to the contact with a user's finger and portions shaded with horizontal lines denote sensors 4 that have responded in previous. The blank portions denote sensors 4 that have not been contacted and have not responded. The icon is first touched at time t0, and is dragged at time t1, and the dragging ends at time t2 to thus cancel the lock. The control unit 3 calculates the average value '2' of the number of columns of sensors 4 that responded to the contact with the finger and adds a correction value '1' to the average, thereby defining a threshold value '3'. The threshold value is stored in the control unit 3.

FIG. 4B shows another method for unlocking the terminal using the finger pad input. As can be seen in FIG. 4B, a lock cancel icon is displayed in the lock cancel screen that can be dragged in a y direction and a -y direction with a finger pad. FIG. 5B is a schematic view showing states of the sensor 4 at various timing during when the user drags the icon for cancelling the lock with a finger pad in the y direction for unlocking. The icon is first touched at time t0, then dragged at time t1, and the dragging ends at time t2 to thus cancel the lock. The control unit 3 calculates the average value '4' of the number of columns of sensors 4 that responded to the contact with the finger and subtracts a correction value '1' therefrom, thereby defining a threshold value '3'. The threshold value is stored in the control unit 3.

The threshold value used for determining the contact range is defined as above by using the average value of the number of columns of sensors 4 that responded to the contact with the finger during unlocking (S1003). In other words, the threshold value for determining the contact range can be obtained (i.e., calibration can be made), simultaneously with unlocking operation.

The control unit 3 unlocks the portable terminal 0 (S1004) and waits until the user makes various inputs by way of the touch panel 1 (S1005). Receiving an input with a contact range equal to or narrower than the threshold value (specifically, "3" or less) (S1006), the control unit 3 determines that a finger tip input is made (S1007). Receiving an input with a contact range wider than the threshold value (specifically, "4" or more) (S1006), the control unit 3 determines that a finger pad input is made (S1008). After that, various operations are performed following the order of the input.

When no input is made for a predetermined period, several minutes for example, the control unit 3 stores the time and date of calibration, the threshold value, and other setting values, and then locks the portable terminal 0 (S1009). The control unit 3 displays the lock cancel screen (S1001) when a lock cancel switch assigned to the button switch 5 is pushed (S1010). When the button switch 5 is pressed for a certain time while the power of the portable terminal 0 is on, the power turns off.

As described heretofore, regardless of difference with individuals in contact ranges of finger tip input, the calibration allows accuracy of contact range determination to be improved. The first embodiment of the present invention uses the average of the number of columns of the sensors 4 that responded to the contact with the finger as the threshold value. However, this is not the only possible way for setting the threshold. For example, the threshold value may be corrected by adding an appropriate value to, or subtracting any value from, the average of the number of columns of the sensors 4 that responded to a contact with a finger. The threshold value does not need to be an integer and instead a capacitance value

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may be used. Further, the threshold value used for determining the contact range may be discarded upon locking, and calibration can be performed to update threshold value every time the terminal is unlocked. Instead of performing calibration upon unlocking, calibration may be performed only at the first time the portable terminal 0 is turned on. It may also be performed by selecting a function for calibration from a setting menu or the like. Furthermore, the first embodiment of the present invention performed calibration on the basis of the contact range of either the finger tip input or the finger pad input. Alternatively, the contact ranges of both the finger tip input and the finger pad input may be obtained to set a plurality of threshold values.

A method for distinguishing the finger tip input and the finger pad input will be described in more details below. FIGS. 6A and 6B show a method for distinguishing flicking by finger tip input and tapping by finger pad input. FIG. 6A shows conditions of sensors 4 responding to a finger tip flicking in a -x direction. FIG. 6B shows conditions of sensors 4 responding to a finger pad tapping. At time t00 which is the time a contact starts, the number of sensors responding to the contact is same in FIGS. 6A and 6B. The control unit 3 stores the time t00 at which the contact is started. If the number of sensors responding to the contact range would not change at the subsequent time t01 and time t02, the control unit 3 determines the contact as a finger tip flicking. If the number of sensors responding increases as time elapses as the time t01 and the time t02, the control unit 3 determines the contact as a finger pad tapping. In brief, the control unit 3 distinguishes the finger tip flicking and the finger pad tapping by comparing the number of sensors that responded at the time t00 to the number of sensors responding at the time t02. Since the determination is not done at the instance of a user touching the touch panel 1, a finger pad input will not be misdetected as a finger tip input even when the initial contact range is narrow.

A way of moving an icon utilizing the difference between contact ranges of the finger tip input and the finger pad input will be described in detail below. FIGS. 7A to 7C show states of an icon 7 moved rightwardly (in a y direction) by the user using finger tip input and finger pad input. FIG. 8 is a schematic view showing the sensors 4 that responded during the icon movement and the manner of finger movement. Reference numerals 80 and 82 represent fingers making finger pad input with a wide contact range and reference numeral 81 represents a finger making finger tip input with a narrow contact range. First, a user touches the icon 7 desired to be moved with the finger pad input 80. When the contact range is equivalent to or larger than the threshold value, the control unit 3 determines that the input is the finger pad input 80 and sets the icon 7 as a moving object (FIG. 7A). The user then shifts from the finger pad input 80 to the finger tip input 81 while keeping his or her finger in contact with the panel. As the contact range becomes equal to or less than the threshold value, the control unit 3 renders the icon 7 as the moving object movable (FIG. 7B). The user drags the icon 7 to a desired position and then shifts from the finger tip input 81 to the finger pad input 82. As the contact range becomes equivalent to or larger than the threshold value, the control unit 3 determines that the input is the finger pad input 82 and validates the position of the icon 7 (FIG. 7C).

As described above, the first embodiment allows the user to make more intuitive input. The contact range described herein may be the number of sensors responded or the maximum number of the columns of sensors responded. When an application for finger pad input with a wide contact area is not set

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or applied to the terminal, the process of determining contact area can be omitted and contact operation may be performed uniformly.

[Second Embodiment]

A second embodiment of the present invention relates to a portable terminal 0 using a password. The second embodiment is characterized in that it stores not only a numeric password but also a difference in the contact range with the aim of enhancing security. A description is made for an example of the enhanced security function that incorporates a four-digit password and a difference in the contact range with reference to; FIG. 9 showing a flow chart of password registration, FIGS. 10A and 10B showing typical screen images displayed during calibration, FIGS. 11A to 11C showing screen images for prompting a user to register a password, and FIGS. 12A and 12B showing data consisting of a password and a set of corresponding input method. The portable terminal 0 according to the second embodiment has the same configuration as that of the portable terminal 0 according to the first embodiment unless otherwise specified.

The process for password registration will be first described with reference to the flow chart of FIG. 9. After initial settings such as counter reset is done, an image as shown in FIG. 10A is displayed to prompt the user to make a finger tip contact (S2000). A control unit 3 records the contact range of the finger tip input (S2001). Next, an image as shown in FIG. 10B is displayed to prompt the user to make a finger pad contact. The control unit 3 records the contact range of the finger pad input (S2002). Contact ranges are detected at the timing when a button switch 5 is pushed following the contact with finger tip or finger pad. When the contact range of the finger pad input is larger than that of the finger tip input, the control unit 3 authorizes the input as a correct input (S2003: Yes). The contact range of the finger tip input is determined as a threshold value and the value is stored (S2004). When the contact range of the finger pad input is smaller than that of the finger tip input (S2003: No), the control unit 3 prompts the user to make a finger tip input again (S2001). Completing the determination of a threshold value, the control unit 3 next checks the counter value. When the counter is 4 or less (S2005: No), the control unit 3 displays a message to inform the user that a password can be input by either the finger tip input or the finger pad input (FIG. 11A). Registration of the numbers is then authorized.

The user selects and touches any numbers among numbers 0 to 9 displayed on a touch panel 1 by either the finger tip input or the finger pad input. The selected numbers are registered as input numerals (S2006). Then, the control unit 3 compares the contact range with the threshold value. When the contact range is equal to or smaller than the threshold value (S2007: Yes), the control unit 3 stores the input numeral in association with the finger tip input (S2008). A message as shown in FIG. 11C is displayed to inform the user that the numeral has been registered by finger tip input. When the contact range is larger than the threshold value (S2007: No), the control unit 3 stores the input numeral in association with the finger pad input (S2009).

The control unit 3 displays a message as shown in FIG. 11B to inform the user that the numeral has been registered by finger pad input. The control unit 3 then increments the counter and proceeds to the next password input (S2010). When the counter is greater than 4 (S2005: Yes), a numeric string of four input numerals is registered as the password as shown in FIG. 12A. In addition, the input method of either the finger tip input or the finger pad input corresponding to the numeral is stored for each input numeral. The password registration thus terminates (S2011).

Docket No.: 093265-0063
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of
U.S. Patent No. 8,654,093

Application No.: Not Yet Assigned

Filed: January 29, 2019

For: INFORMATION PROCESSING APPARATUS

Customer Number: 20277

Confirmation No.: Not Yet Assigned

Art Unit: Not Yet Assigned

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT (IDS)

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

Sir:

Pursuant to 37 C.F.R. § 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new reissue application submitted herewith.

Copies of the documents cited in the prior U.S. Patent Application Nos. 13/366,983, filed on February 6, 2012 and 14/154,993, filed on January 14, 2014 and relied upon in this application for an earlier filing date under 35 U.S.C. § 120 are not supplied.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 50-0417, under Order No. 093265-0063.

Respectfully submitted,

MCDERMOTT WILL & EMERY LLP

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Date: January 29, 2019

**Please recognize our Customer No. 20277 as
our correspondence address.**

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		2019-01-29
	First Named Inventor	Masaaki YAMADA	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	093265-0063	

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	1	5844547	A	1998-12-01	Minakuchi et al.	Corresponds to JP 5-100809A

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	1	2005-202527	JP	A	2005-07-28	Fujitsu Component Ltd.	Corresponds to U.S. 2005/0162407A1	
	2	5-100809	JP	A	1993-04-23	Fujitsu Ltd.	Corresponds to U.S. 5,844,547A	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number		
Filing Date		2019-01-29
First Named Inventor	Masaaki YAMADA	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	093265-0063	

3	201101130	TW	A1	2011-01-01	AU OPTRONICS CORP	w/English Language Abstract
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NON-PATENT LITERATURE DOCUMENTS

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	Entire Prosecution of U.S. Patent Application No. 13/366,983, filed February 6, 2012, now U.S. Patent No. 8,654,093, issued February 18, 2014 to YAMADA entitled "INFORMATION PROCESSING APPARATUS".	
	2	Entire Prosecution of U.S. Patent Application No. 14/154,993, filed January 14, 2014, now U.S. Patent No. 8,982,086, issued March 17, 2015 to YAMADA entitled "INFORMATION PROCESSING APPARATUS".	
	3	Chinese Office Action issued in corresponding Chinese Patent Application No. 2014062700460410, dated July 2, 2014.	

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

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

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	2019-01-29
First Named Inventor	Masaaki YAMADA
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	093265-0063

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	/Tomoki Tanida/	Date (YYYY-MM-DD)	2019-01-29
Name/Print	Tomoki Tanida	Registration Number	60453

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

Privacy Act Statement

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

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

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

項番.1 一覧 前 次 全文 レイアウト 印刷 メモ 評価・分類 引用 最新書誌 経過監視 ファミリ 翻訳

◎○△× 評価:

TW201101130A 2011/01/01 TW98120269A 2009/06/17

AU OPTRONICS CORP (TW) [LIU CHUN TING (TW)]

G06F 3/041 (2006.01)

Touch operation method and operation method of electronic device

[57]ABSTRACT:

A touch operation method and an operation method of electronic device are provided. The touch operation method comprises the steps of determining whether an await selection object of a touch panel is touched. Secondly, the step of outputting a floating menu corresponding to an attribute of the await selection object when a touch time of the touched await selection object reaches a first predetermined time. Then, the step of determining whether one of a plurality of menu fields in the floating menu is selected. Thus, the step of performing a first order corresponding to the selected menu field when one of the plurality of menu fields in the floating menu is selected. Besides, the electronic device performs a second order corresponding to the selected menu field when the touch time of the selected menu field reaches a predetermined time.



[1]件表示しました。



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(74)代理人：楊大德

申請實體審查：有 申請專利範圍項數：23 項 圖式數：4 共 24 頁

(54)名稱

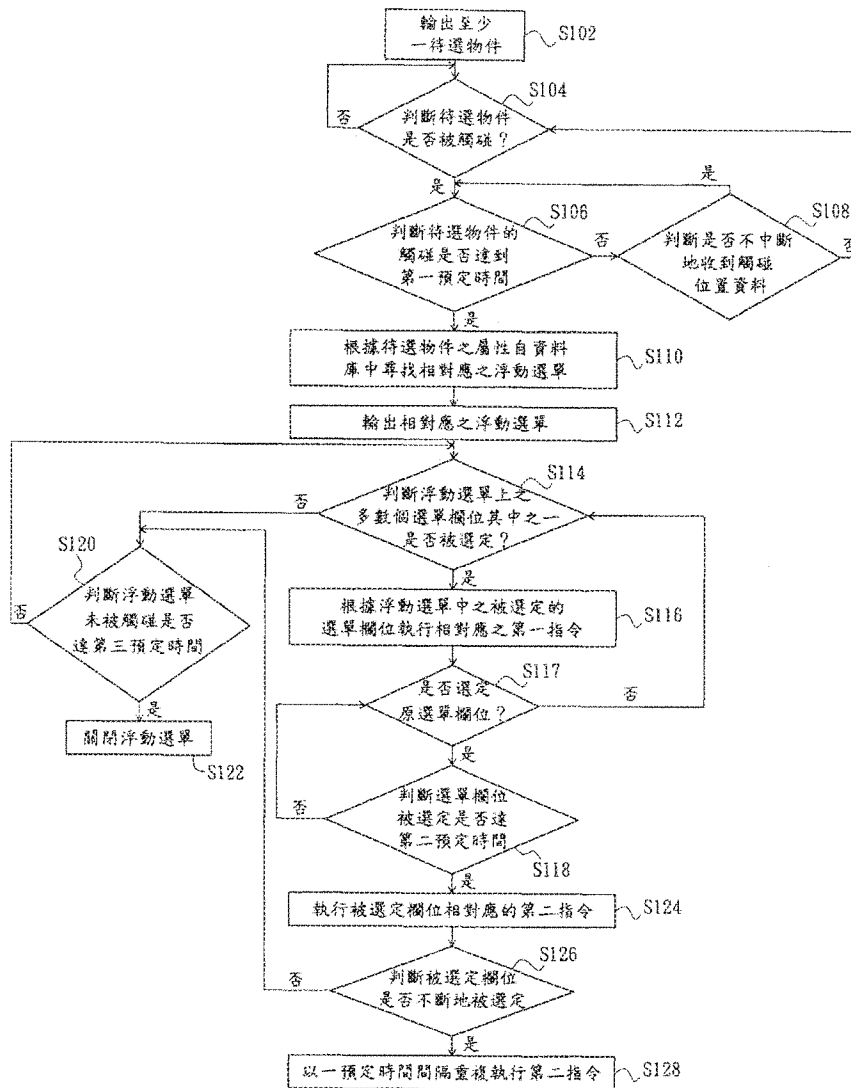
觸碰操作方法與電子裝置之操作方法

TOUCH OPERATION METHOD AND OPERATION METHOD OF ELECTRONIC DEVICE

(57)摘要

一種觸碰操作方法與電子裝置之操作方法，此觸碰操作方法包括判斷顯示於觸控螢幕上之待選物件是否被觸碰。其次，當待選物件被觸碰達第一預定時間時，則根據待選物件之屬性輸出相對應之浮動選單。接著，判斷浮動選單上之多數個選單欄位其中之一是否被選定，並於當該動選單上之選單欄位其中之一被選定時，則根據被選定的選單欄位執行相對應之第一指令。另外，當被選定之選單欄位被選定達第二預定時間時，則執行被選定之選單欄位所對應的第二指令。

S102 ~ S128：各個
步驟流程



六、發明說明：

【發明所屬之技術領域】

本發明是有關於一種觸控螢幕的操作方法，且特別是有關於一種觸碰操作方法與電子裝置之操作方法。

【先前技術】

在現今各式消費性電子產品的市場中，個人數位助理(PDA)、行動電話(mobile Phone)、筆記型電腦(notebook)及平板電腦(tablet PC)等可攜式電子產品皆已廣泛的使用觸控式面板(touch panel)作為其資料溝通的界面工具。此外，由於目前電子產品的設計皆以輕、薄、短、小為方向，因此在產品上無足夠空間容納如鍵盤、滑鼠等傳統輸入裝置，尤其在講求人性化設計的平板電腦需求的帶動下，觸控式面板已經一躍成為關鍵的零組件之一。而且觸控式面板除了符合可作多層次選單設計要求外，亦能同時擁有鍵盤，滑鼠等的功能及手寫輸入等人性化的操作方式，尤其將輸入與輸出整合在同一介面(螢幕)的特質，更是其他傳統輸入裝置所不及之處。

在習知之觸控螢幕中，使用者在對電子裝置內之檔案進行操作時可以例如是對觸控螢幕上所顯示的選單進行選擇或是利用電子裝置上配置的硬體操作鍵進行操作。因此，習知的觸控螢幕上僅能列出一般文件或檔案共同的固定式功能選單，而無法針對不同屬性的文件或檔案有不同的功能選單。而使用者在操作時，則需要反覆的移動於選單與物件間，若是過程中有不慎誤觸的情況，甚至可能得一切重來。

為了改善以上的缺點，如美國專利公告號第 7479949 號所述，其觸控螢幕的操作方法係為利用單點或多點觸控的方式來對觸控螢幕進行操作。以多點觸控為例，使用者可以利用兩根手指頭在觸控螢幕上的移動軌跡來對觸控螢幕上的照片進行

放大與縮小；以單點觸控為例時，使用者可以利用手指的向左滑動來觀看上一頁的檔案或是向右滑動來觀看上一頁的檔案。如此之設計的確給使用者帶來了使用上的便利性，但缺點就是使用者必須先熟記多組操作的手勢，而且電子裝置在判斷手勢時也可能因為物體觸碰的力道不足或方向有所偏差導致誤判，而使得使用者得重新再作一次手勢。

【發明內容】

本發明的目的就是在提供一種觸碰操作方法，其係在觸控螢幕被觸控時輸出浮動選單，以讓使用者輕易地即可操作物件，而減少手勢操作時誤動作。

本發明的再一目的是提供一種電子裝置之操作方法，其可讓使用者無須背誦電子裝置的操作手勢，還能讓使用者能順利的操作此電子裝置，因此可有效提升觸控螢幕使用便利性。

本發明提出一種觸碰操作方法，其係適用於觸控螢幕上。此觸碰操作方法包括判斷顯示於觸控螢幕上之一待選物件是否被觸碰。其次，當待選物件被觸碰達第一預定時間時，則根據待選物件之屬性輸出相對應之浮動選單。接著，判斷浮動選單上之多數個選單欄位其中之一是否被選定，並於當該動選單上之選單欄位其中之一被選定時，則根據被選定的選單欄位執行相對應之第一指令。另外，當被選定之選單欄位被選定達第二預定時間時，則執行被選定之選單欄位所對應的第二指令。

在本發明的較佳實施例中，上述之輸出浮動選單之步驟包括以待選物件被觸碰之點為基礎而輸出浮動選單。

在本發明的較佳實施例中，上述之當被選定之選單欄位被選定達第二預定時間時，則執行被選定之選單欄位所對應的第二指令之步驟包括判斷被選定之選單欄位在被選定達第二預

定時間後是否仍不中斷地被選定，然而當被選定之選單欄位仍不中斷地被選定時，則以預定時間間隔重複執行第二指令。

本發明另提出一種電子裝置之操作方法，此電子裝置包括觸控螢幕，且觸控螢幕上顯示有至少一個待選物件。該電子裝置之操作方法包括當待選物件被觸碰達第一預定時間時，則根據待選物件之屬性輸出相對應之浮動選單。其次，當浮動選單上之多數個選單欄位其中之一被選定未達第二預定時間時，則根據被選定的選單欄位執行相對應之第一指令，而當被選定的選單欄位被選定達第二預定時間時，則執行被選定之選單欄位所對應的第二指令。其中，第一預定時間小於第二預定時間。

本發明因在觸控螢幕被觸控時輸出浮動選單，使用者則無須背誦電子裝置的操作手勢即可輕易地操作物件，不但能減少手勢操作時的誤動作，還可有效提升觸控螢幕使用便利性。

為讓本發明之上述和其他目的、特徵和優點能更明顯易懂，下文特舉較佳實施例，並配合所附圖式，作詳細說明如下。

【實施方式】

請參照圖 1，其繪示根據本發明一實施例之觸碰操作方法的步驟流程圖。在本實施例中，此觸碰操作方法係為適用於電子裝置的觸控螢幕上，當電子裝置被致能後，電子裝置則於觸控螢幕上顯示至少一個待選物件（步驟 S102），或是當使用者於觸控螢幕上任一處觸碰後，觸控螢幕即上顯示至少一個待選物件，亦可以是電子裝置或觸控螢幕上有某個特定的功能鍵，當此功能鍵被按下時，觸控螢幕即上顯示至少一個待選物件。當然，顯示待選物件之方式，自當不以此為限。

在本發明之較佳實施例中，此待選物件可以例如是照片、影音檔、文件檔、電子郵件或是其他可由使用者進行觀賞或編

輯之檔案。

在本實施例中，當待選物件被輸出至觸控螢幕後，電子裝置則判斷待選物件是否被觸碰（步驟 S104）。請參照圖 2，其繪示根據本發明一實施例之觸碰操作方法中之判斷待選物件是否被觸碰的步驟流程圖。在圖 2 中，當電子裝置接收到觸碰位置資料（步驟 S202）後，則對觸碰位置資料作座標轉換運算（步驟 S204）。其中，在觸控螢幕的顯示畫面上，其本身已有定義的座標規格，因此電子裝置將觸碰位置資料換算成已定義的座標規格後，得到觸碰點相對應的座標位置。由於在觸控螢幕上所顯示之待選物件係具有一範圍，以四邊形的待選物件為例，其將具有代表其範圍的四個座標位置。因此，電子裝置於得到觸碰點的座標位置後即根據此座標位置與觸控螢幕上的每個待選物件的範圍作匹配，藉此判斷觸碰點的座標位置落於哪個待選物件的範圍中（步驟 S206）。

當觸碰點的座標位置落於某個待選物件的範圍中時，電子裝置則定義此待選物件已被使用者選定（步驟 S210），並回到步驟 S104。反之，當觸碰點的座標位置未落於任何一個待選物件的範圍中時，電子裝置則定義使用者未選定任何待選物件，並回到步驟 S202。

請繼續參照圖 1，當待選物件被選定後，電子裝置接著判斷使用者於待選物件上的觸碰是否達到第一預定時間（步驟 S106）。在此判斷中，可利用上述之觸碰點的座標位置是否一直落於相同的待選物件的範圍內作判斷。當判斷得知於待選物件上的觸碰尚未達到第一預定時間時，則判斷電子裝置是否不中斷地收到觸碰位置資料（步驟 S108）。亦即，判斷所收到的觸碰位置資料於轉換成座標位置後，是否均落於相同的待選

物件的範圍內。當判斷得知持續收到的觸碰位置資料均落於相同的待選物件的範圍內時，則定義為不中斷地收到觸碰位置資料，並回到步驟 S106。反之，當前後的觸碰位置資料落於不同的待選物件的範圍內時，則回到步驟 S104。

在本實施例中，在確認被觸碰的待選物件後，則根據待選物件之屬性至電子裝置之資料庫中選找與此待選物件相對應之浮動選單（步驟 S110）。其中，不同屬性的待選物件將會有不同的浮動選單，以照片檔與影音檔作比較，照片檔將會有放大、縮小、旋轉之功能，但影音檔則可能沒有相應的功能。反之，影音檔將會有播放、快轉、倒退之功能，而照片檔則可能沒有相應的功能。

電子裝置於尋找到相對應之浮動選單後，則輸出浮動選單至觸控螢幕上（步驟 S112）。輸出浮動選單之方式則可以例如有如是以待選物件被觸碰之點為基礎而輸出浮動選單、將浮動選單輸出至觸控螢幕之中心位置或是將浮動選單上的選單欄位分別輸出至觸控螢幕的各角落。其中，浮動選單一般可以具有多個選單欄位。接著，電子裝置則判斷浮動選單上之任一個選單欄位是否被選定（步驟 S114）。

在步驟 S114 中，一種可能的做法是當輸出浮動選單時以觸碰點為原點，使用者於選擇選單欄位不必特別用手指去觸碰選單欄位，只需於原點上施予側向壓力即可選擇不同的選單欄位。例如，最初時原點所代表之位置係為浮動選單的中心位置，亦即浮動選單中位於中間的選單欄位（可採反白表示，以使用者知道目前的位置）。當對原點施予的壓力被判定為是施力方向往畫面下緣的側向壓力時，則電子裝置將認為使用者所選擇的是位於中間選單欄位下方的選單欄位（具體是哪一個欄

位則視側向壓力的存在時間以及電子裝置每隔多久進行一次判斷而定)。因此，使用者可以利用各種方向的側向壓力來選擇不同的選單欄位。其中，當電子裝置於偵測原點的側向壓力時，則對此側向壓力作方向指標運算並得到一個方向指標。接著，即根據方向指標所指之方向以及按壓的時間長度來定義相對應之選單欄位為被選定之選單欄位。

在步驟 S114 中確認被選定的選單欄位時，電子裝置即根據此選單欄位所代表之功能執行相對應的第一指令（步驟 S116）。其次，則判斷是否選定原選單欄位（步驟 S117），亦即電子裝置將判斷使用者是否持續選擇相同的選單欄位。當使用者持續選擇相同的選單欄位時，電子裝置將進一步判斷被選定之選單欄位被選定是否達第二預定時間（步驟 S118）。

其中，判斷是否選定原選單欄位之步驟可以是電子裝置收到觸碰位置資料後，則對觸碰位置資料進行座標轉換，以得到目前觸碰點的座標位置。接著判斷目前觸碰點的座標位置是否落於已執行第一指令之選單欄位之範圍內。當判斷得知目前觸碰點的座標位置落於已執行第一指令之選單欄位之範圍內時，則定義為原選單欄位持續被選定。另外，當目前觸碰點的座標位置未落於已執行第一指令之選單欄位之範圍內時，電子裝置則僅執行第一指令，並回到步驟 S114。當浮動選單未被觸碰且時間達到第三預定時間時，則關閉浮動選單（步驟 S122），並回到步驟 S104。反之，當浮動選單未被觸碰的時間未達到第三預定時間時，則回到步驟 S114，並判斷是否有選單欄位被選定。如無選單欄位被選定時，則至步驟 S120。

在本實施例中，當被選定之選單欄位被選定達第二預定時間時，電子裝置則執行被選定欄位相對應的第二指令（步驟

S124)。其中，第一指令可以例如是與第二指令相同，亦可不同，其端視設計者之需要而定。

電子裝置於執行第二指令後，則不中斷地判斷被選定的選單欄位是否持續被選定（步驟 S126）。其中，判斷方式為電子裝置收到觸碰位置資料後，則對觸碰位置資料進行座標轉換，以得到目前觸碰點的座標位置。接著判斷目前觸碰點的座標位置是否落於被選定的選單欄位之範圍內。當判斷得知目前觸碰點的座標位置落於被選定的選單欄位之範圍內時，則以一預定時間間隔重複執行第二指令（步驟 S128）。反之，當被選定的選單欄位未持續被選定時，則到步驟 S120。

請參照圖 3A 與 3B，其分別繪示本發明一實施例之於觸控螢幕上輸出浮動選單之示意圖以及本發明一實施例之浮動選單之選單欄位被選定並執行對應指令之示意圖。在圖 3A 中，觸控螢幕 302 上係顯示有待選物件 304~310 以及浮動選單 312。其中，如觸控螢幕 302 上之手指 314 觸碰到待選物件 304 之後，電子裝置則進行如圖 1 之步驟 S104~S112，以將浮動選單 312 顯示於觸控螢幕 302 上。其中，浮動選單 312 係具有多個選單欄位，且可以例如是電子郵件、縮小（zoom out）、全螢幕、逆時針旋轉（rotate CCW）、取消（cancel）、順時針旋轉（rotate CW）、刪除（delete）、放大（zoom in）以及編輯（edit）。

請繼續參照圖 3B，當手指 314 觸碰逆時針旋轉（rotate CCW）之選單欄位時，則電子裝置執行圖 1 之步驟 S116，使待選物件 304 逆時針旋轉。當手指 314 持續觸碰逆時針旋轉（rotate CCW）之選單欄位，且時間達第二預定時間時，則電子裝置執行圖 1 之步驟 S124。其中，第一指令可能是使待選

物件 304 逆時針旋轉 45 度，而第二指令亦可以是使待選物件 304 逆時針旋轉 45 度或 1 度。而在手指 314 觸碰逆時針旋轉 (rotate CCW) 之選單欄位的時間達第二預定時間後，則電子裝置可以例如是每 0.5 秒就使待選物件 304 逆時針旋轉 45 度或 1 度，直至手指 314 離開觸控螢幕 302 為止，但均不以此為限。

請參照圖 4A~4D，其係分別繪示本發明另一實施例之觸控螢幕上輸出多個待選物件之示意圖、本發明另一實施例之觸控螢幕上出現浮動選單之示意圖、本發明另一實施例之執行選單欄位對應指令之示意圖以及本發明另一實施例之執行選單欄位另一對應指令之示意圖。在圖 4A 中，觸控螢幕 402 上係具有待選物件 404~410 以及手指 414。當手指 414 觸碰到待選物件 404 時，電子裝置則將圖 3A 之浮動選單拆散，而將選單欄位 412a~412d 分別輸出至觸控螢幕 402 的四個角落（如圖 4B 所示）。其中，為方便說明，本實施例僅以四個選單欄位 412a~412d 為例作說明，但實際上自當不以此為限。

在本實施例中，在輸出選單欄位 412a~412d 的同時，電子裝置亦將待選物件 404 移至觸控螢幕 402 的中心位置，並將待選物件 406~410 移至邊緣處，此僅為本發明之一實施例，但實際上仍須視設計者之需求而定。

在圖 4C 中，當手指 414 觸碰選單欄位 412a (rotate CCW) 時，則待選物件 404 則電子裝置執行圖 1 之步驟 S116，使待選物件 404 逆時針旋轉。當手指 414 持續觸碰選單欄位 412a，且時間達第二預定時間時，則電子裝置執行圖 1 之步驟 S124。而在手指 414 觸碰選單欄位 412a 的時間達第二預定時間後，則電子裝置即執行圖 1 之步驟 S128。

在圖 4D 中，當手指 414 觸碰選單欄位 412d (zoom in) 時，則電子裝置執行圖 1 之步驟 S116，使待選物件 404 放大。當手指 414 持續觸碰選單欄位 412a，且時間達第二預定時間時，則電子裝置執行圖 1 之步驟 S124。而在手指 414 觸碰選單欄位 412a 的時間達第二預定時間後，則電子裝置即執行圖 1 之步驟 S128。

綜上所述，在本發明之觸碰操作方法與電子裝置之操作方法，其係在觸控螢幕被觸控時輸出一浮動選單，因此使用者無須背誦電子裝置的操作手勢即可輕易地操作物件，不但能減少手勢操作時的誤動作，還可有效提升觸控螢幕使用便利性。

雖然本發明已以較佳實施例揭露如上，然其並非用以限定本發明，任何熟習此技藝者，在不脫離本發明之精神和範圍內，當可作些許之更動與潤飾，因此本發明之保護範圍當視後附之申請專利範圍所界定者為準。

【圖式簡單說明】

圖 1 繪示本發明一實施例之觸碰操作方法的步驟流程圖。

圖 2 繪示本發明一實施例之觸碰操作方法中之判斷待選物件是否被觸碰的步驟流程圖。

圖 3A 繪示本發明一實施例之於觸控螢幕上輸出浮動選單之示意圖。

圖 3B 繪示本發明一實施例之浮動選單之選單欄位被選定並執行對應指令之示意圖。

圖 4A 繪示本發明另一實施例之觸控螢幕上輸出多個待選物件之示意圖。

圖 4B 繪示本發明另一實施例之觸控螢幕上出現浮動選

單之示意圖。

圖 4C 繪示本發明另一實施例之執行選單欄位對應指令之示意圖。

圖 4D 繪示本發明另一實施例之執行選單欄位另一對應指令之示意圖。

【主要元件符號說明】

302、402：觸控螢幕

304、306、308、310、404、406、408、410：待選物件

312、412a、412b、412c、412d：浮動選單

314、414：手指

S102～S128：各個步驟流程

S202～S210：各個步驟流程



發明專利說明書

(本說明書格式、順序，請勿任意更動，※記號部分請勿填寫)

※申請案號： 98120269

※申請日： 98.6.17

※IPC 分類： G06F3/041 (2006.01)

一、發明名稱：(中文/英文)

觸碰操作方法與電子裝置之操作方法 / TOUCH
OPERATION METHOD AND OPERATION METHOD OF
ELECTRONIC DEVICE

二、中文發明摘要：

一種觸碰操作方法與電子裝置之操作方法，此觸碰操作方法包括判斷顯示於觸控螢幕上之待選物件是否被觸碰。其次，當待選物件被觸碰達第一預定時間時，則根據待選物件之屬性輸出相對應之浮動選單。接著，判斷浮動選單上之多數個選單欄位其中之一是否被選定，並於當該動選單上之選單欄位其中之一被選定時，則根據被選定的選單欄位執行相對應之第一指令。另外，當被選定之選單欄位被選定達第二預定時間時，則執行被選定之選單欄位所對應的第二指令。

三、英文發明摘要：

A touch operation method and an operation method of electronic device are provided. The touch operation method comprises the steps of determining whether an await selection object of a touch panel is touched. Secondly, the step of outputting a floating menu corresponding to an attribute of the await selection object when a touch time of the touched await selection object reaches a first predetermined time. Then, the step of determining whether one of a plurality of menu fields in the

floating menu is selected. Thus, the step of performing a first order corresponding to the selected menu field when one of the plurality of menu fields in the floating menu is selected. Besides, the electronic device performs a second order corresponding to the selected menu field when the touch time of the selected menu field reaches a predetermined time.

四、指定代表圖：

(一)本案指定代表圖為：第（ 1 ）圖。

○

(二)本代表圖之元件符號簡單說明：

S102～S128：各個步驟流程

五、本案若有化學式時，請揭示最能顯示發明特徵的化學式：

無

○

七、申請專利範圍：

1.一種觸碰操作方法，係適用於一觸控螢幕上，該觸碰操作方法包括：

判斷顯示於該觸控螢幕上之一待選物件是否被觸碰；

當該待選物件被觸碰達一第一預定時間時，則根據該待選物件之一屬性輸出相對應之一浮動選單；

判斷該浮動選單上之多數個選單欄位其中之一是否被選定；

當該浮動選單上之該些選單欄位其中之一被選定時，則根據該被選定的選單欄位執行相對應之一第一指令；以及

當該被選定之選單欄位被選定達一第二預定時間時，則執行該被選定之選單欄位所對應的一第二指令。

2.如申請專利範圍第 1 項所述之觸碰操作方法，其中判斷該待選物件是否被觸碰之步驟包括：

接收一觸碰位置資料；

對該觸碰位置資料作一座標轉換運算，並得到一座標位置；

判斷該座標位置是否位於該待選物件之範圍內；以及

當該座標位置位於該待選物件之範圍內時，則定義該待選物件已被選定。

3.如申請專利範圍第 2 項所述之觸碰操作方法，更包括：

當該待選物件被觸碰未達該第一預定時間時，則判斷是否不中斷地收到該觸碰位置資料；

當未收到該觸碰位置資料時，則判斷該待選物件是否被觸碰；以及

當不中斷地收到該觸碰位置資料時，則判斷該待選物件是否被觸碰達該第一預定時間。

4.如申請專利範圍第 1 項所述之觸碰操作方法，其中係以該待選物件被觸碰之點為基礎而輸出該浮動選單。

5.如申請專利範圍第 4 項所述之觸碰操作方法，其中判斷該浮動選單上之該些選單欄位其中之一是否被選定之步驟包括：

偵測被觸碰之點之一側向壓力；

對該側向壓力作一方向指標運算，並得到一方向指標；以

及

根據該方向指標以定義相對應之該些選單欄位其中之一為該被選定之選單欄位。

6.如申請專利範圍第 5 項所述之觸碰操作方法，其中當該被選定之選單欄位被選定達該第二預定時間時，則執行該被選定之選單欄位所對應的該第二指令之步驟包括：

判斷該被選定之選單欄位在被選定達該第二預定時間後是否仍不中斷地被選定；以及

當該被選定之選單欄位仍不中斷地被選定時，則以一預定時間間隔重複執行該第二指令。

7.如申請專利範圍第 1 項所述之觸碰操作方法，其中判斷該浮動選單上之該些選單欄位其中之一是否被選定之步驟包括：

偵測被觸碰之點之一側向壓力；

對該側向壓力作一方向指標運算，並得到一方向指標；以

及

根據該方向指標以定義相對應之該些選單欄位其中之一為該被選定之選單欄位。

8.如申請專利範圍第 7 項所述之觸碰操作方法，其中當該

觸控螢幕上之另一待選物件被觸碰時，則關閉該浮動選單。

9.如申請專利範圍第 7 項所述之觸碰操作方法，其中當該被選定之選單欄位被選定達該第二預定時間時，則執行該被選定之選單欄位所對應的該第二指令之步驟包括：

判斷當該被選定之選單欄位在被選定達該第二預定時間後是否仍不中斷地被選定；以及

當該被選定之選單欄位仍不中斷地被選定時，則以一預定時間間隔重複執行該第二指令。

10.如申請專利範圍第 9 項所述之觸碰操作方法，更包括：

當該些選單欄位皆未被選定時，則判斷該些選單欄位皆未被選定的時間是否達一第三預定時間；以及

當該些選單欄位皆未被選定達該第三預定時間時，則關閉該浮動選單。

11.如申請專利範圍第 1 項所述之觸碰操作方法，其中該浮動選單係被輸出至該觸控螢幕之中心位置。

12.如申請專利範圍第 1 項所述之觸碰操作方法，其中該些選單欄位係被輸出至該觸控螢幕的角落。

13.一種電子裝置之操作方法，該電子裝置包括一觸控螢幕，且該觸控螢幕上顯示有至少一待選物件，該電子裝置之操作方法包括：

當該待選物件被觸碰達一第一預定時間時，則根據該待選物件之一屬性輸出相對應之一浮動選單；以及

當該浮動選單上之多數個選單欄位其中之一被選定未達一第二預定時間時，則根據該被選定的選單欄位執行相對應之一第一指令，而當該被選定的選單欄位被選定達該第二預定時間時，則執行該被選定之選單欄位所對應的一第二指令；

其中，該第一預定時間小於該第二預定時間。

14.如申請專利範圍第 13 項所述之電子裝置之操作方法，更包括判斷該浮動選單上之該些選單欄位其中之一是否被選定。

15.如申請專利範圍第 14 項所述之電子裝置之操作方法，其中係以該待選物件被觸碰之點為基礎而輸出該浮動選單。

16.如申請專利範圍第 15 項所述之電子裝置之操作方法，其中判斷該浮動選單上之該些選單欄位其中之一是否被選定之步驟包括：

偵測被觸碰之點之一側向壓力；

對該側向壓力作一方向指標運算，並得到一方向指標；以及

根據該方向指標以定義相對應之該些選單欄位其中之一為該被選定之選單欄位。

17.如申請專利範圍第 16 項所述之電子裝置之操作方法，其中當該被選定之選單欄位被選定達該第二預定時間時，則執行該被選定之選單欄位所對應的該第二指令之步驟包括：

判斷該被選定之選單欄位在被選定達該第二預定時間後是否仍不中斷地被選定；以及

當該被選定之選單欄位仍不中斷地被選定時，則以一預定時間間隔重複執行該第二指令。

18.如申請專利範圍第 13 項所述之電子裝置之操作方法，其中判斷該浮動選單上之該些選單欄位其中之一是否被選定之步驟包括：

偵測被觸碰之點之一側向壓力；

對該側向壓力作一方向指標運算，並得到一方向指標；以

及

根據該方向指標以定義相對應之該些選單欄位其中之一為該被選定之選單欄位。

19.如申請專利範圍第 18 項所述之電子裝置之操作方法，其中當該觸控螢幕上之另一待選物件被觸碰時，則關閉該浮動選單。

20.如申請專利範圍第 19 項所述之電子裝置之操作方法，其中當該被選定之選單欄位被選定達該第二預定時間時，則執行該被選定之選單欄位所對應的該第二指令之步驟包括：

判斷當該被選定之選單欄位在被選定達該第二預定時間後是否仍不中斷地被選定；以及

當該被選定之選單欄位仍不中斷地被選定時，則以一預定時間間隔重複執行該第二指令。

21.如申請專利範圍第 20 項所述之電子裝置之操作方法，更包括：

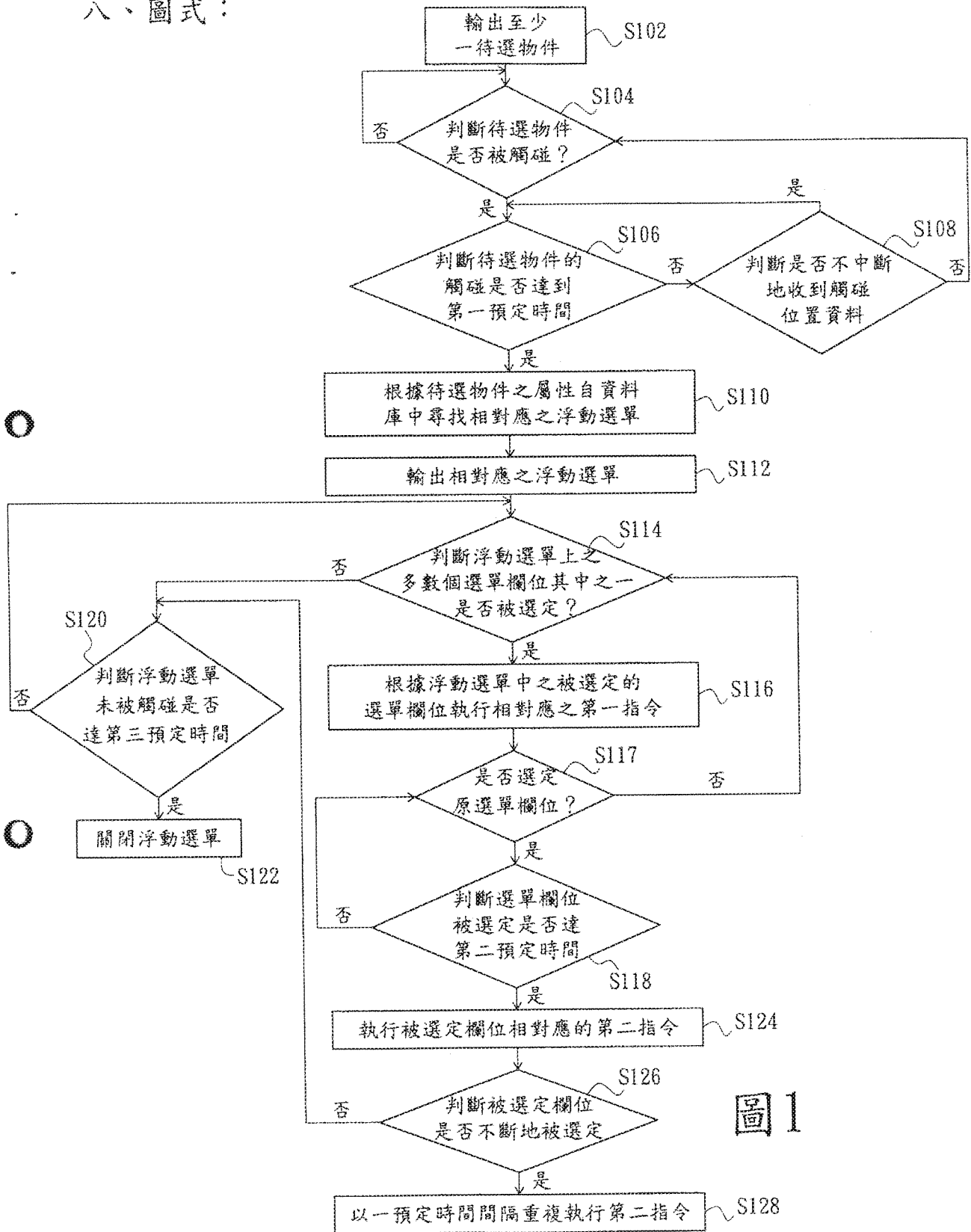
當該些選單欄位皆未被選定時，則判斷該些選單欄位皆未被選定的時間是否達一第三預定時間；以及

當該些選單欄位皆未被選定達該第三預定時間時，則關閉該浮動選單。

22.如申請專利範圍第 13 項所述之電子裝置之操作方法，其中該浮動選單係被輸出至該觸控螢幕之中心位置。

23.如申請專利範圍第 13 項所述之電子裝置之操作方法，其中該些選單欄位係被分散於該觸控螢幕的角落。

八、圖式：



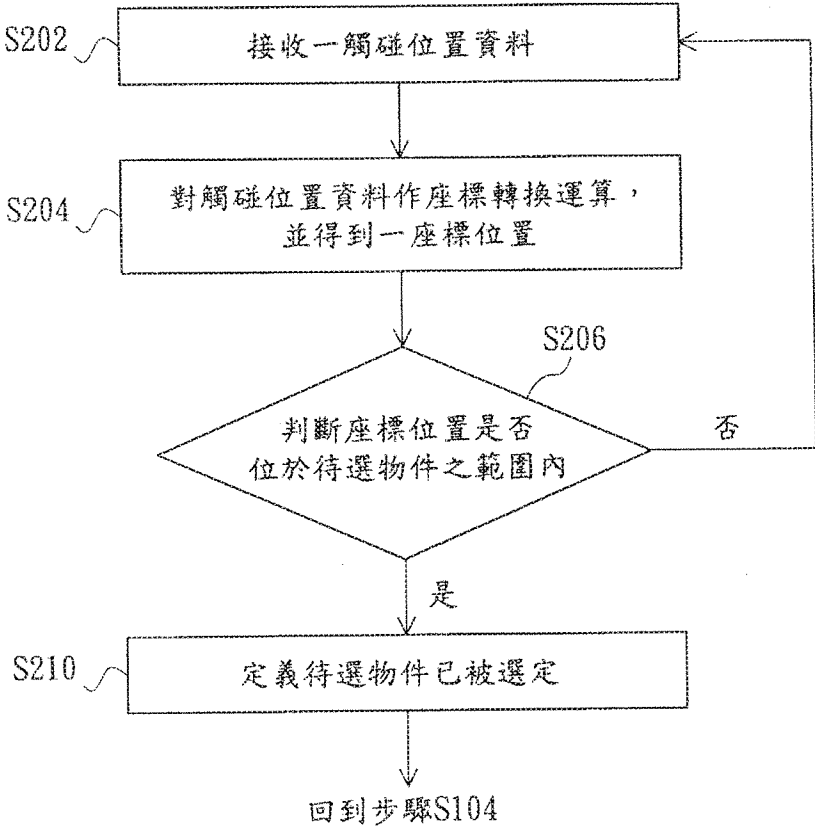


圖2

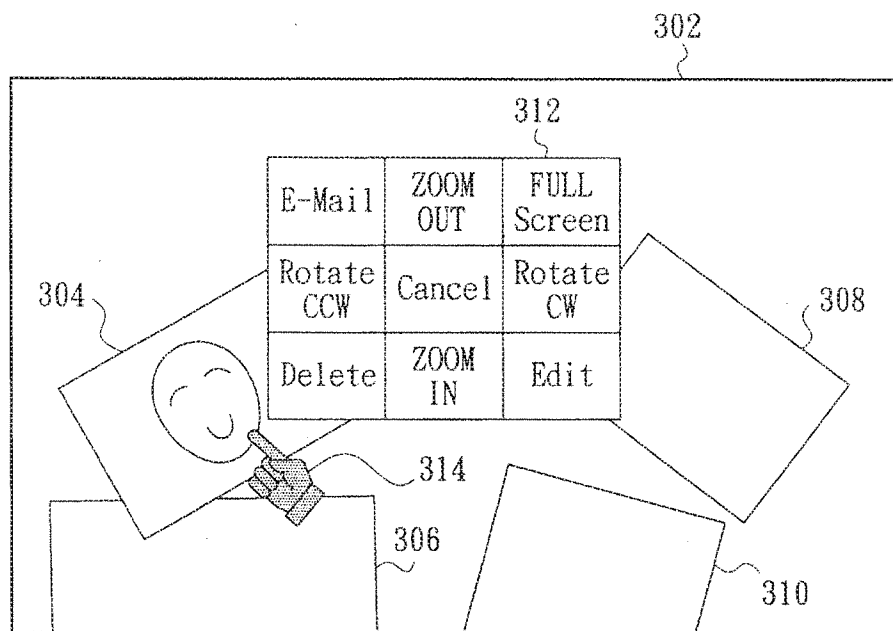


圖 3A

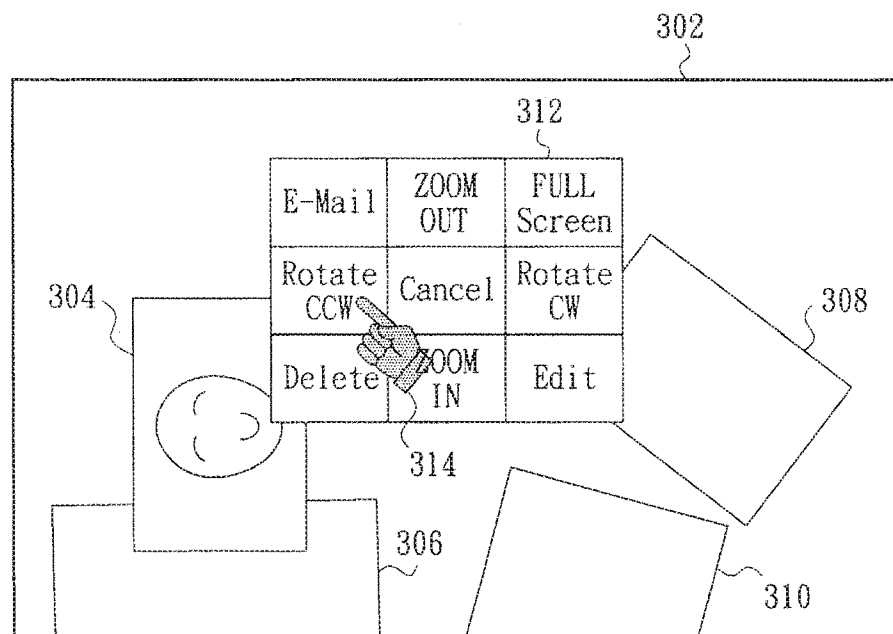


圖 3B

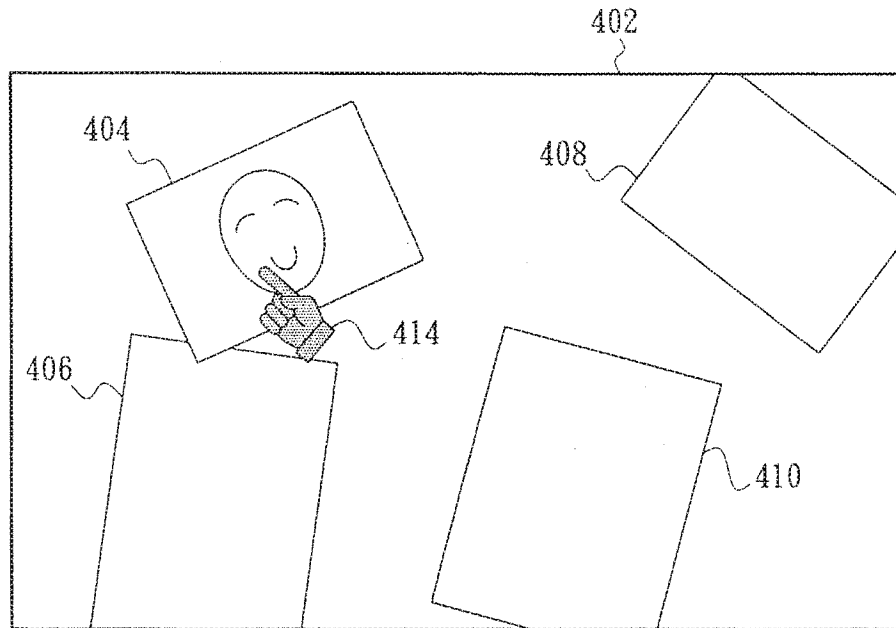


圖 4A

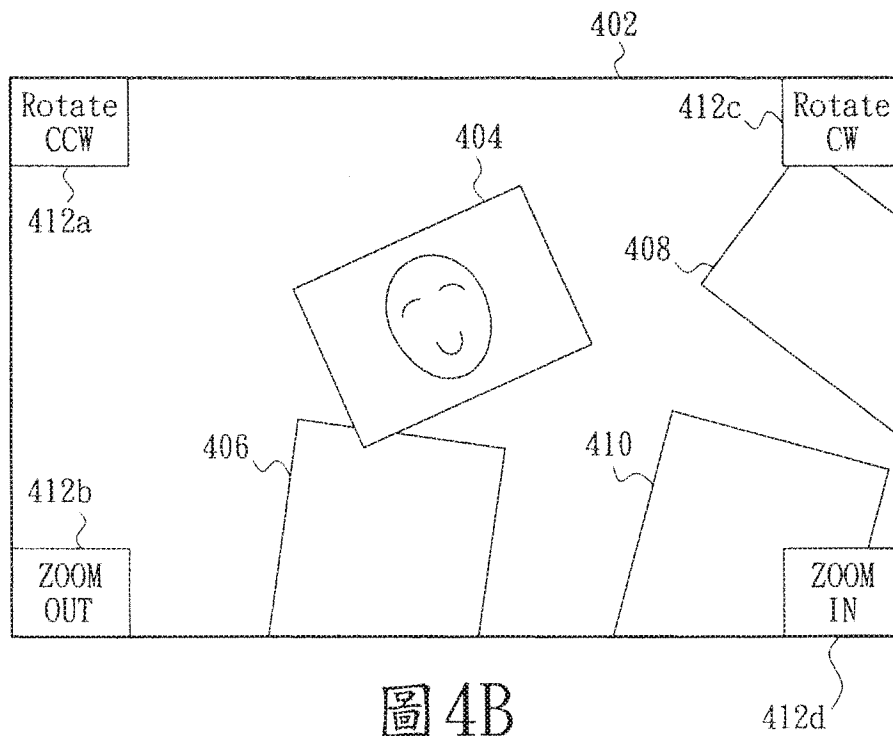


圖 4B

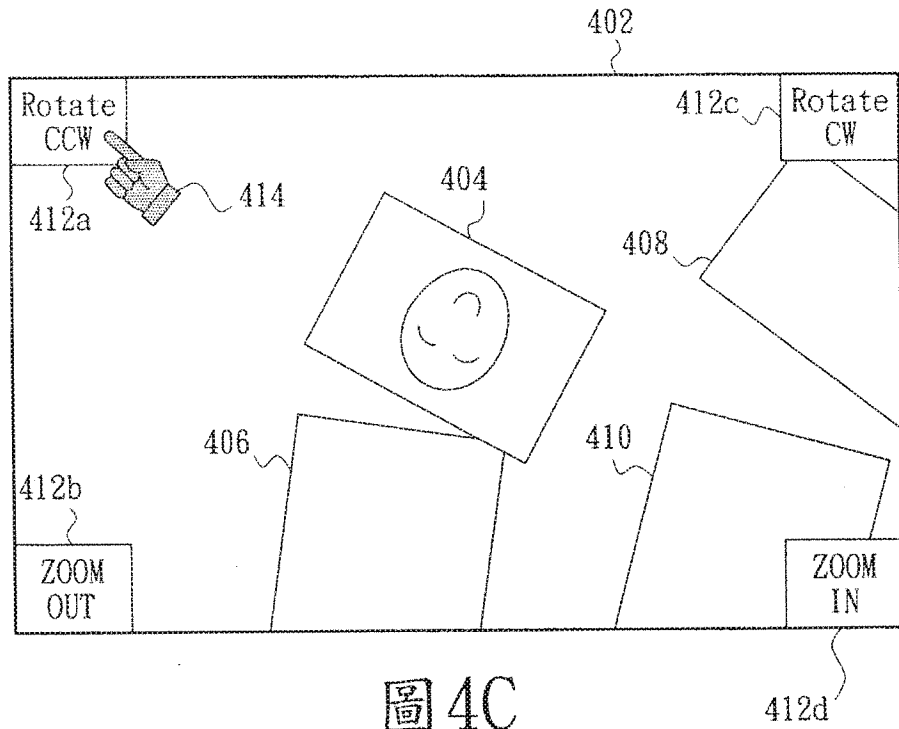


圖 4C

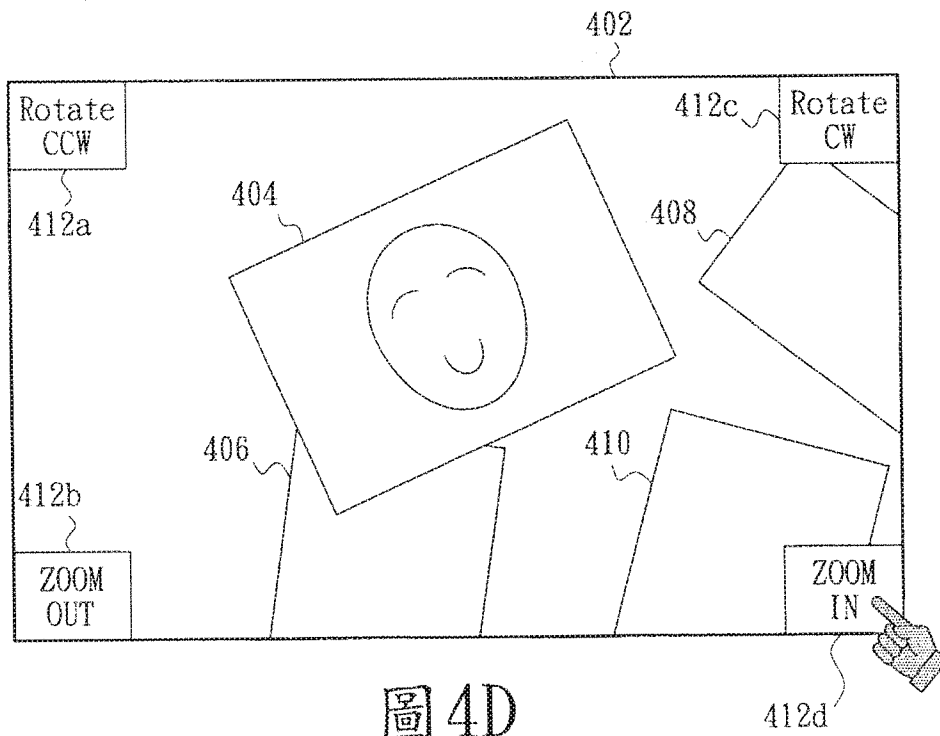


圖 4D

floating menu is selected. Thus, the step of performing a first order corresponding to the selected menu field when one of the plurality of menu fields in the floating menu is selected. Besides, the electronic device performs a second order corresponding to the selected menu field when the touch time of the selected menu field reaches a predetermined time.

四、指定代表圖：

(一)本案指定代表圖為：第（ 1 ）圖。

○

(二)本代表圖之元件符號簡單說明：

S102～S128：各個步驟流程

五、本案若有化學式時，請揭示最能顯示發明特徵的化學式：

無

○

Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	INFORMATION PROCESSING APPARATUS			
First Named Inventor/Applicant Name:	Masaaki Yamada			
Filer:	Tomoki Tanida/Renell Feimster			
Attorney Docket Number:	093265-0063			
Filed as Large Entity				
Filing Fees for Reissue (Utility)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY REISSUE BASIC	1014	1	300	300
REISSUE OR REISSUE DESIGN CPA SEARCH FEE	1114	1	660	660
REISSUE OR REISSUE DESIGN CPA EXAM. FEE	1314	1	2200	2200
Pages:				
Claims:				
REISSUE CLAIMS IN EXCESS OF 20	1205	15	100	1500
INDEPENDENT CLAIMS REISSUE	1204	1	460	460
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				5120

Electronic Acknowledgement Receipt

EFS ID:	34995686
Application Number:	16260879
International Application Number:	
Confirmation Number:	3220
Title of Invention:	INFORMATION PROCESSING APPARATUS
First Named Inventor/Applicant Name:	Masaaki Yamada
Customer Number:	20277
Filer:	Tomoki Tanida/Renell Feimster
Filer Authorized By:	Tomoki Tanida
Attorney Docket Number:	093265-0063
Receipt Date:	29-JAN-2019
Filing Date:	
Time Stamp:	15:40:12
Application Type:	Reissue (Utility)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$5120
RAM confirmation Number	013019INTEFSW00002400500417
Deposit Account	500417
Authorized User	Renell Feimster

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

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

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Reissue Application	Reissue_Application_Transmittal.pdf	181664	no	1
			6c0e9fbc2f7f772ab7769ef3854f6ea01979515		
Warnings:					
Information:					
2	Fee Worksheet (SB06)	Reissue_Fee_Transmittal.pdf	186072	no	1
			d5b80869dc3f566fcde4819e2f68f07f74a292f		
Warnings:					
Information:					
3	Application Data Sheet	ADS.pdf	1503016	no	6
			6048226fe07c1827bab3c228b54a1757e8c5f09c		
Warnings:					
Information:					
4	Power of Attorney	Transmittal_POA.pdf	433274	no	3
			978666705e1b969b1d3eb95c50e31815df685ca8		
Warnings:					
Information:					
5	Preliminary Amendment	Preliminary_Amendment.pdf	1490964	no	11
			06ccd34cf81ddb89632b15b1aff98e88f3b443aa		
Warnings:					
Information:					
6		Specification_Drawings_Abstract.pdf	2489216	yes	24
			83f24ec9ff300b792a7d4c3e4a69df7e359136ba		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	

	Abstract		1	1	
	Drawings-only black and white line drawings		2	18	
	Specification		19	21	
	Claims		22	24	
Warnings:					
Information:					
7	Transmittal Letter	IDS_Transmittal.pdf	182090	no	2
			ed2b16c0c29557f979196d38ffbfa348ac69e10a		
Warnings:					
Information:					
8	Information Disclosure Statement (IDS) Form (SB08)	IDS_SB08.pdf	612700	no	4
			a050ce6f5de287d46ee13dc68bc12fc69da24905		
Warnings:					
Information:					
9	Other Reference-Patent/App/Search documents	NPL_CN_OA.pdf	1223740	no	7
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Warnings:					
Information:					
10	Foreign Reference	TW_201101130A.pdf	3637548	no	26
			5e966acb78e340c77b80878d95d7a34f2152a503		
Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	37821	no	2
			5b1c20619b4c280f0190ddcdcd6070d1c6d85c077		
Warnings:					
Information:					
Total Files Size (in bytes):			11978105		

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.

Docket No.: 093265-0063
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of:	:	Customer Number: 20277
U.S. Patent No. 8,654,093	:	
	:	
Application No.: Not yet assigned	:	Confirmation No.: N/A
	:	
Filed: January 29, 2019	:	Art Unit: N/A
	:	
For: INFORMATION PROCESSING APPARATUS	:	Examiner: Not Yet Assigned

FIRST PRELIMINARY AMENDMENT UNDER 37 C.F.R. § 1.115

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

INTRODUCTORY COMMENTS

Prior to examination on the merits, please amend the above-identified U.S. patent application as follows:

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

Amendments to the Claims begin on page 3 of this paper.

Remarks/Arguments begin on page 11 of this paper.

AMENDMENTS TO THE SPECIFICATION

Please replace the first paragraph under the header "CLAIMS OF PRIORITY" with the following amended paragraph:

The present application is a reissue application of U.S. Patent No. 8,654,093 issued on February 18, 2014 from U.S. Patent Application No. 13/366,983 filed February 6, 2012, which in turn claims priority from Japanese patent application serial [no.] No. JP2011-025576, filed on [Feb.] February 9, 2011, the [content] entire contents of each of which [is] are hereby incorporated by reference into this application.

AMENDMENTS TO THE CLAIMS

1. (Original) An information processing apparatus comprising:
 - a touch panel which displays a plurality of pieces of identification information and detecting a contact of the panel with an object of interest;
 - a detection unit, when the touch panel detects a contact with the object, which specifies identification information indicated by a position at which the contact in question occurred, of the multiple pieces of identification information displayed on the panel, and which detects an area of part where the contact occurred;
 - a storage unit which stores reference identification information and a reference area range;
 - a determination unit which determines whether the identification information detected by the detection unit matches the reference identification information stored in the storage unit and whether the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit; and
 - a control unit which performs particular processing on condition the determination unit determines that the identification information detected by the detection unit matches the reference identification information stored in the storage unit and the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit.
2. (Original) The information processing apparatus according to claim 1, wherein:
 - the storage unit stores, when a predetermined condition is satisfied, the identification information and the area of the contact detected by the detection unit as the reference identification information and the reference area range, respectively.
3. (Original) The information processing apparatus according to claim 1 or 2, wherein:
 - the storage unit stores first identification information and a first area range and second identification information and a second area range as the reference identification information and the reference area ranges; and
 - the determination unit determines, on condition the identification information detected by the detection unit matches the first identification information stored in the storage unit and the area of the contact detected by the detection unit falls within the first area range stored in the storage

unit, whether the identification information detected by the detection unit matches the second identification information stored in the storage unit and the area of the contact detected by the detecting unit falls within the second area range stored in the storing unit.

4. (Original) The information processing apparatus according to claim 1 or 2, wherein: the storage unit stores a threshold value; and

the reference area range stored in the storage unit is defined based on the threshold value.

5. (Original) The information processing apparatus according to claim 4, wherein:
the area of the contact detected by the detection unit is registered as the threshold value when a predetermined condition is satisfied.

6. (Original) An information processing apparatus comprising:
a touch panel which displays a plurality of pieces of identification information and detecting a contact of the panel with an object of interest;

a detection unit for, when the touch panel detects a contact of the panel with the object, which specifies identification information indicated by a position at which the contact in question occurred, of the multiple pieces of identification information displayed on the touch panel, and which detects an area of part where the contact occurred;

a storage unit which stores a series of identification information and a series of area ranges, the series of area ranges each corresponding to the respective identification information; and

a control unit which performs particular processing on condition that a set of identification information detected by the detection unit matches the series of identification information stored in the storage unit and a series of contact areas detected by the detection unit each falls within the corresponding one of the series of area ranges stored in the storage unit.

7. (Original) The information processing apparatus according to claim 6, wherein:
the storage unit stores a first set of area ranges and a second set of area ranges as corresponding area ranges of the stored series of identification information; and

first processing is performed on condition that a set of identification information detected by the detecting unit matches the series of identification information stored in the storage unit and the

areas of the contact detected by the detecting unit each falls within a corresponding one of the first set of area ranges stored in the storage unit, and second processing is performed on condition that a set of identification information detected by the detecting unit matches the series of identification information stored in the storing unit and the areas of the contact detected by the detecting unit each falls within a corresponding one of the second set of area ranges stored in the storage unit.

8. (New) An information processing apparatus comprising:
a touch panel configured to detect a contact of a finger of a user;
a controller configured to control the information processing apparatus to operate in two
operating modes: at least an identification mode and a registering mode;
a memory configured to store first information relating to identification of the user during
operation of the registering mode, the first information corresponding to a fingerprint of the user;
a detector configured to detect second information necessary for an identification of the user
when contact is detected between the touch panel and the finger of the user;
wherein the controller is configured to execute a specified process when the first information
and the second information are coincident within the identification mode,
wherein the registering mode includes a first registering mode for inputting first input
information corresponding to a first portion of the finger and a second registering mode for
inputting second input information corresponding to a second portion of the finger and said first
information is generated and stored in memory based on both the first input information and the
second input information, the first portion corresponding to a pad of the finger; and
wherein generation of the second information in the identification mode is based on the first
and second portions of the finger to determine whether the second information is coincident with the
stored first information.

9. (New) The information processing apparatus according to claim 8, wherein the touch
panel includes a group of capacitive plates that generate changes in capacitance based on contact of
the finger.

10. (New) The information processing apparatus according to claim 8, wherein the second portion of the finger corresponds to an edge of the finger.

11. (New) The information processing apparatus according to claim 8, further comprising a display screen for displaying a first image with first descriptive text and a second image with a second descriptive text during the registration mode,

wherein the first image and the first descriptive text inform the user to use the first portion of the finger, and the second image and second descriptive text inform the user to use the second portion of the finger.

12. (New) The information processing apparatus according to claim 8, wherein the specified process corresponds to an unlocking operation of the information processing apparatus.

13. (New) The information processing apparatus according to claim 8, further comprising a display screen for displaying information during the identification mode informing the user to use the finger to execute the specified operation,

wherein the specified operation corresponds to an unlocking operation of the information processing apparatus.

14. (New) The information processing apparatus according to claim 8, further comprising a display screen for displaying one or more images during registration mode,

wherein one or more images includes a shaded portion indicating portions of the fingerprint detected by the touch panel and a non-shaded portion indicating portions of the fingerprint not detected by the touch panel.

15. (New) The information processing apparatus according to claim 8, wherein the controller is configured to execute tapping, dragging, flicking, and pinching operations based on detection of contact of the finger.

16. (New) The information processing apparatus according to claim 15, wherein the tapping operation includes detection of contact of the finger for a first time period, the dragging operation includes the user moving the finger while maintaining the contact for a second time

period, the flicking operation includes the user sliding the finger for a third period of time that is shorter than the second time period, and the pinching operation includes the user establishing two contacts changing the distance between the established two contacts.

17. (New) The information processing apparatus according to claim 8, further comprising a display screen for displaying a plurality of icons corresponding to applications being executed an operation for moving one of the plurality of icons based on a drag operation using the finger, the drag operation requiring the detection of contact of the finger with the touch panel for a predetermined period of time.

18. (New) The information processing apparatus according to claim 8, wherein generation of the first information during operation of the registration mode includes determining whether there is sufficient contact between the finger and the touch panel based on a threshold value related to a contact range.

19. (New) The information processing apparatus according to claim 8, wherein generation of the second information during operation of the identification mode includes determining whether there is sufficient contact between the finger and the touch panel based on a threshold value related to a contact range.

20. (New) The information processing apparatus according to claim 8, wherein the controller is configured to associate a numeral password with the first information, and the memory is configured to store the association between the numeral password and the first information.

21. (New) A method for controlling an information processing apparatus comprising the steps of:

detecting a contact of a finger of a user by a touch panel;

operating the information processing apparatus in two operating modes: at least an identification mode and a registering mode by a controller;

storing a first information relating to identification of the user during operation of the registering mode, the first information corresponding to a fingerprint of the user in a memory;

detecting a second information necessary for an identification of the user when contact is detected between the touch panel and the finger of the user by a detector; and

executing a specified process when the first information and the second information are coincident within the identification mode by the controller;

wherein the registering mode includes a first registering mode for inputting first input information corresponding to a first portion of the finger and a second registering mode for inputting second input information corresponding to a second portion of the finger, and the first information is generated and stored in the memory based on both the first input information and the second input information, the first portion corresponding to a pad of the finger; and

wherein generation of the second information in the identification mode is based on the first and second portions of the finger to determine whether the second information is coincident with the stored first information.

22. (New) The method for controlling the information processing apparatus according to claim 21, wherein the touch panel includes a group of capacitive plates that generate changes in capacitance based on contact of the finger.

23. (New) The method for controlling the information processing apparatus according to claim 21, wherein the second portion of the finger corresponds to an edge of the finger.

24. (New) The method for controlling the information processing apparatus according to claim 21, further comprising the step of displaying a first image with first descriptive text and a second image with a second descriptive text during the registration mode by a display screen,

wherein the first image and the first descriptive text inform the user to use the first portion of the finger, and the second image and second descriptive text inform the user to use the second portion of the finger.

25. (New) The method for controlling the information processing apparatus according to claim 21, wherein the specified process corresponds to an unlocking operation of the information processing apparatus.

26. (New) The method for controlling the information processing apparatus according to claim 21, further comprising the step of displaying information during the identification mode informing the user to use the finger to execute the specified operation by a display screen, wherein the specified operation corresponds to an unlocking operation of the information processing apparatus.

27. (New) The method for controlling the information processing apparatus according to claim 21, further comprising the step of displaying one or more images during registration mode by a display screen, wherein one or more images includes a shaded portion indicating portions of the fingerprint detected by the touch panel and a non-shaded portion indicating portions of the fingerprint not detected by the touch panel.

28. (New) The method for controlling the information processing apparatus according to claim 21, further comprising the step of executing tapping, dragging, flicking and pinching operations based on detection of contact of the finger.

29. (New) The method for controlling the information processing apparatus according to claim 21, wherein the tapping operation includes detection of a contact of the finger for a first time period, the dragging operation includes the user moving the finger while maintaining the contact for a second time period, the flicking operation includes the user sliding the finger for a third period of time that is shorter than the second time period, and the pinching operation includes the user establishing two contacts changing the distance between the established two contacts.

30. (New) The method for controlling the information processing apparatus according to claim 21, further comprising the step of displaying a plurality of icons corresponding to applications being executed an operation for moving one of the plurality of icons based on a drag operation using the finger by a display, the drag operation requiring the detection of contact of the finger with the touch panel for a predetermined period of time.

31. (New) The method for controlling the information processing apparatus according to claim 21, wherein generation of the first information during operation of the registration mode includes determining whether there is sufficient contact between the finger and the touch panel based on a threshold value related to a contact range.

32. (New) The method for controlling the information processing apparatus according to claim 21, wherein generation of the second information during operation of the identification mode includes determining whether there is sufficient contact between the finger and the touch panel based on a threshold value related to a contact range.

33. (New) The method for controlling the information processing apparatus according to claim 21, further comprising the steps of:
associating a numeral password with the first information; and
storing the association between the numeral password and the first information in the memory.

REMARKS

Applicant hereby offers to surrender, if necessary, the original Letters Grant Patent No. 8,654,093 ('093 patent) prior to the issuing of any reissue patent.

I. Status of Claims

The state of the claims is as follows: claims 1–33 are pending in the reissue application. Claims 1–7 remain original, and new claims 8–33 have been added.

II. Support for Claim Changes

The explanation of exemplary support in the disclosure for the amendment is as follows:
Support for new claims 8–33 can be found in, for example, Figs. 1A, 2, 4A, 4B, 5A, 5B, 7A–7C, 9, 10A, 10B, 13, and 14, and column 3, lines 9–40; and column 3, lines 41–56, of the '093 patent. Care has been exercised to avoid the new matter.

III. Conclusion

Applicant submits that all of the claims are in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicant's attorney at the telephone number shown below.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 50-0417, under Order No. 093265-0063 from which the undersigned is authorized to draw.

Respectfully submitted,

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A method for cancelling or unlocking the password will be next described below with reference to FIG. 13 showing a flow chart of a password cancel process and FIG. 14 showing a password cancel screen.

As can be seen in FIG. 14, the control unit 3 displays a password cancel screen including a ten-key pad with a plurality of numerals in order to prompt the user to input a numeral. At the same time, the control unit 3 performs initial settings such as counter reset (S3000). The control unit 3 waits until a user inputs a numeral (S3001). Upon the user touching the touch panel 1, the control unit 3 specifies the number according to a position of the contact. The contact range of the contact is compared with a threshold value to thereby determine whether the input is a finger tip input or a finger pad input (S3002). The control unit 3 stores the numeral input and the input method used (S3003). When the number of the input and the password registered earlier matches, (S3004: Yes) and the input methods thereof matches as well (S3005: Yes), the control unit 3 increments the counter (S3006). When the counter is not greater than 4 (S3007: No), the control unit 3 proceeds to the step for inputting the next password number. When the counter is greater than 4 (S3007: Yes), the password is authenticated (S3008) and the lock is canceled. Meanwhile, in cases where the number of input and a password do not match (S3004: No), or in cases where the number of input and a password match but their input methods do not match (S3005: No), the control unit 3 displays a message to inform the password or the input method is wrong (S3009). The password cancellation thus terminates.

It is to be noted that a plurality of input methods may be registered for one password. For example, in the case shown in FIG. 12B, three types of input methods are registered for one password and a specific operation is assigned for each of them: input method 1 is for displaying a normal standby screen, input method 2 is for displaying a mail creating screen, and input method 3 is for starting an application. A user can start a desired operation easily by way of unlocking the password, thus contributing to improved convenience. Not to mention, a plurality of input methods may be registered for a plurality of passwords as well.

Using the above system, a user can complicate cancellation of a lock by making a simple input to enhance security. The portable terminal 0 can thus handle user's highly confidential information, which makes the terminal more useful.

Security can be enhanced by only storing, in addition to the password registered, the input method for each of the password numbers. An increase in storage capacity can be sufficiently suppressed.

From the view of a user, the user only needs to remember the input method for each password number to unlock the portable terminal 0. Burdens on the user for memorization can thus be alleviated. It is also advantageous in that when a user has to tell others the way to unlock the portable terminal 0, the user only needs to tell the password numbers and the input method for each of the password numbers.

Although the second embodiment employed a password composed of numerals only, the present invention is not limited to this. The password may be composed of alphabets, symbols, figures, patterns, colors, or other elements, or combinations thereof. In addition, the number of digits of a password is not limited to four and the number may instead be one, two, or a greater numeral.

The process for password registration (FIG. 9) may be started when a predetermined condition is satisfied, such as when the user calls up a particular function from a setting menu.

In the embodiment of the present invention, calibration is performed by a user touching a single point. However, the present invention is not limited to this. For example, the calibration performed during unlocking as described for the first embodiment may be applied. The user may also start calibration by calling up a particular function from the setting menu. Incidentally, during the password cancellation, the message informing the fact that the difference in contact ranges are detected may be not shown (hidden), and when only the numbers are correct, a message may be displayed to inform that the difference in the contact range is also registered. Numerals and input methods may also be hidden and not shown during password input. While a threshold value is used for distinguishing the finger tip input and the finger pad input in the embodiment, the present invention is not limited to this. The determination of an input method may be conducted in a manner such that records both contact ranges of the finger tip input and the finger pad input, and when a input is made, compares the input contact range with the data, whereby selecting the closer one as the method of the particular input.

The operation of distinguishing the difference in the contact range may be omitted in particular situations of input. For example, the system may be adapted so that the classification based on a difference in contact ranges is not performed when the button switch is pressed or when more than two points are touched for multi-touch input.

What is claimed is:

1. An information processing apparatus comprising:
 - a touch panel which displays a plurality of pieces of identification information and detecting a contact of the panel with an object of interest;
 - a detection unit, when the touch panel detects a contact with the object, which specifies identification information indicated by a position at which the contact in question occurred, of the multiple pieces of identification information displayed on the panel, and which detects an area of part where the contact occurred;
 - a storage unit which stores reference identification information and a reference area range;
 - a determination unit which determines whether the identification information detected by the detection unit matches the reference identification information stored in the storage unit and whether the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit; and
 - a control unit which performs particular processing on condition the determination unit determines that the identification information detected by the detection unit matches the reference identification information stored in the storage unit and the area of the contact detected by the detection unit falls within the reference area range stored in the storage unit.
2. The information processing apparatus according to claim 1, wherein:
 - the storage unit stores, when a predetermined condition is satisfied, the identification information and the area of the contact detected by the detection unit as the reference identification information and the reference area range, respectively.
3. The information processing apparatus according to claim 1 or 2, wherein:
 - the storage unit stores first identification information and a first area range and second identification information and a second area range as the reference identification information and the reference area ranges; and

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the determination unit determines, on condition the identification information detected by the detection unit matches the first identification information stored in the storage unit and the area of the contact detected by the detection unit falls within the first area range stored in the storage unit, whether the identification information detected by the detection unit matches the second identification information stored in the storage unit and the area of the contact detected by the detecting unit falls within the second area range stored in the storing unit.

4. The information processing apparatus according to claim 1 or 2, wherein:

the storage unit stores a threshold value; and
the reference area range stored in the storage unit is defined based on the threshold value.

5. The information processing apparatus according to claim 4, wherein:

the area of the contact detected by the detection unit is registered as the threshold value when a predetermined condition is satisfied.

6. An information processing apparatus comprising:

a touch panel which displays a plurality of pieces of identification information and detecting a contact of the panel with an object of interest;

a detection unit for, when the touch panel detects a contact of the panel with the object, which specifies identification information indicated by a position at which the contact in question occurred, of the multiple pieces of identification information displayed on the touch panel, and which detects an area of part where the contact occurred;

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a storage unit which stores a series of identification information and a series of area ranges, the series of area ranges each corresponding to the respective identification information; and

a control unit which performs particular processing on condition that a set of identification information detected by the detection unit matches the series of identification information stored in the storage unit and a series of contact areas detected by the detection unit each falls within the corresponding one of the series of area ranges stored in the storage unit.

7. The information processing apparatus according to claim 6, wherein:

the storage unit stores a first set of area ranges and a second set of area ranges as corresponding area ranges of the stored series of identification information; and

first processing is performed on condition that a set of identification information detected by the detecting unit matches the series of identification information stored in the storage unit and the areas of the contact detected by the detecting unit each falls within a corresponding one of the first set of area ranges stored in the storage unit, and second processing is performed on condition that a set of identification information detected by the detecting unit matches the series of identification information stored in the storing unit and the areas of the contact detected by the detecting unit each falls within a corresponding one of the second set of area ranges stored in the storage unit.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,654,093 B2
APPLICATION NO. : 13/366983
DATED : February 18, 2014
INVENTOR(S) : Masaaki Yamada

Page 1 of 1

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

In the Specification

At Column 1, Line 38, change "displaies" to --displays--.

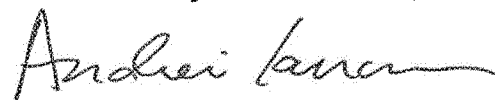
In the Claims

At Column 8, Claim number 1, Line 31, change "displaies" to --displays--.

At Column 9, Claim number 6, Line 22, change "displaies" to --displays--.

At Column 10, Claim number 6, Line 1, change "whish" to --which--.

Signed and Sealed this
Eleventh Day of December, 2018



Andrei Iancu
Director of the United States Patent and Trademark Office