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(56) Documents Cited

GB 2317973 A EP 0390611 A2 WO 97/22097 A1

WO 97/20274 A1 WO 97/10541 A1 WO 95/25326 A1

US 5663748 A US 5534888 A US 5467102 A

(58) Field of Search

UK CL (Edition Q) G4A ADT AUXX

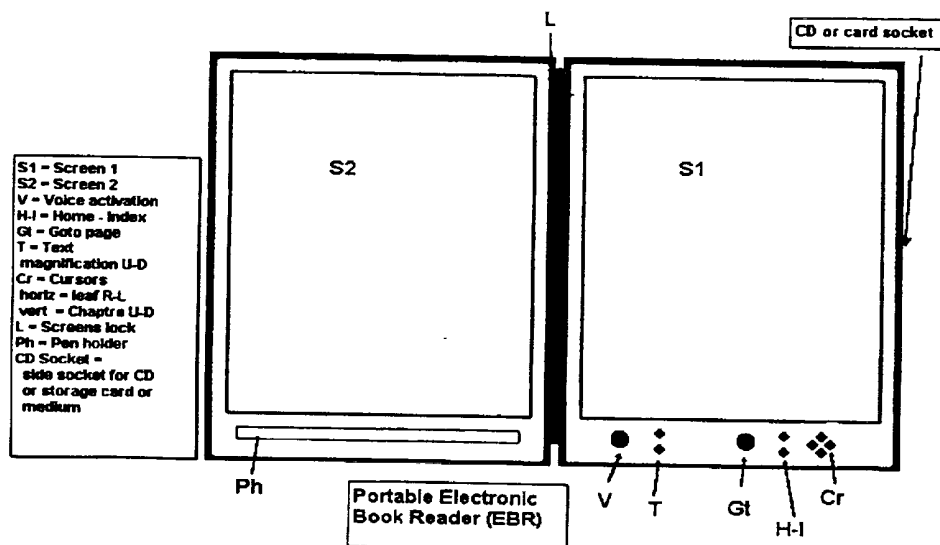
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Selected publications and online: EDOC, JAPIO, WPI

(54) Abstract Title

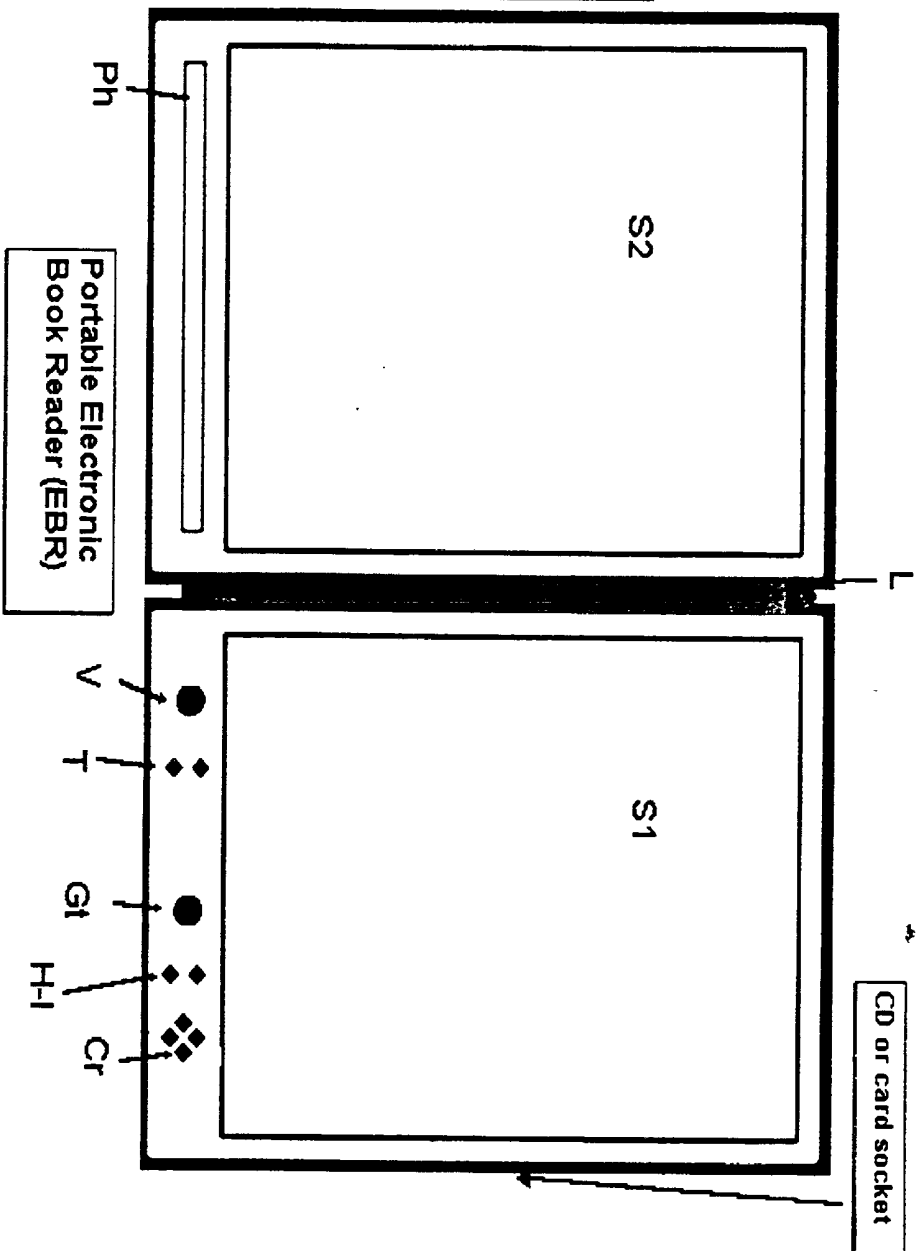
Portable electronic book reader

(57) A portable electronic book reader (EBR) for reading the text of books stored on storage cards or disks, preferably compact disks. The reader has two screens consisting of a light weight display medium (e.g. LCD displays) which open like the pages of a book. Text may be displayed at different magnification and in a range of fonts. The EBR may have a text-to-voice capability and may also be able to respond to voice commands. The screens may be touch sensitive and data such as annotations, bookmarks and settings choices may be entered by the action of a stylus (pen) on a displayed keyboard. Navigation through different parts of the book is possible by means of physical buttons or icons on the screens. Annotations, bookmarks and session reading settings can be saved and retrieved using flash memory. The EBR is lightweight and portable. As a power source the EBR uses internal batteries, mains electricity or solar power.



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S1 = Screen 1
 S2 = Screen 2
 V = Voice activation
 H-I = Home - Index
 Gt = Goto page
 T = Text
 magnification U-D
 Cr = Cursors
 horiz = leaf R-L
 vert = Chapter U-D
 L = Screens lock
 Ph = Pen holder
 CD Socket =
 side socket for CD
 or storage card or
 medium



PORTABLE ELECTRONIC BOOK READER (EBR)

TECHNICAL FIELD

This invention relates to reading books written on CDs.

BACKGROUND

The ordinary paper book has been with humanity for thousands of years. It is certain that its future is in doubt. It is being more and more replaced by electronic book. It will not be long before most if not all of published 'books' will be on a CD or similar electronic medium.

PREFERABLE TECHENICAL FEATURES

The invention essentially consists of the following features:

1. A pair of LCD screens, or any other similar light weight portable display medium, facing each other with a variable size between paper book and A4 paper size. Smaller size screens can be used for cheaper models. The display could be backlit black and white or coloured. These screens are used to display text and pictures. The screen can be locked at any angle between 180° and closed positions.
2. A lightweight compact disc or any other form of storage device, such as as memory cards or discs, readers
3. For screen text display few resident fonts are available. A preferred choice is to use fonts that are supplied with the CD or storage card book. Different size fonts and

magnification of display is possible for the use of partially sighted individuals.

4. A text to voice capability to read selected text, page, or chapter is incorporated for blind and partially sighted use. Different voices can be selected.
5. Data can be entered using a pen and a keyboard picture displayed on the screen.
6. Controls are present on the front of the device. These include navigation keys and on/off and voice activation. These controls can be also in form of software icons displayed at the edge of the screen. Touch screen to move to the next or previous book leaf can be included. The reader might be able to respond to voice commands for navigation.
7. This book reader should be the lightest possible weight and minimum thickness possible for portability. It should be possible to use the book in different locations and hold the book reader horizontally or vertically without affecting function.
8. It should have minimal energy consumption. It could run on ordinary alkaline batteries that should last for many hours or on the mains. It is best to aim for solar or light derived power source for minimal running cost once that is possible.
9. Annotations can be saved in a flash RAM without a need for a hard disc to minimise energy consumption.

THE USE OF PEN:

The pen can be used to activate icons displayed on the screen. These include:

1. A keyboard icon: once this is pressed a keyboard appears on the screen for entering text for text search or page number.
2. Book leaf: right and left
3. Chapter: up and down
4. Front and last page
5. Go to page: enter number via the keyboard.
6. Book index icon.
7. Text: magnification: up & down.
8. Select text for various functions, e.g. for voice reading if only a particular paragraph is to be read rather than a page or a chapter.
9. Scroll bars appear when page is magnified. Pen used to scroll along the bars.
10. Voice activation icon and volume up and down.
11. Page annotation, comments or marking text.
12. Bookmark icon: to mark a particular place in the book or go to a selected bookmark.

A number of different marks can be placed at the different parts of the book. Each mark position could be described by a short text. For example if one stops reading a book at a particular page, a mark could be placed at that place. Once mark one is selected the book directly open to that page. A set of annotations/settings for a particular book can be saved in one file. Such file can be loaded/edited/amended/saved or replaced once the user is finished with that book.

13. Save/load annotation icon: to save annotation, bookmarks and settings such as text magnification, last read page, font setting and sound volume. All annotations or book reading session settings can be saved in a particular file that can be loaded when reading that book again.

Alternate ways of navigation are the cursor and other control keys on the front and voice commands.

CLAIMS

1. Portable Electronic book reader (EBR) is a CD or any other portable storage cards reader with a pair of screens consisting of light weight display medium such as LCD.
2. EBR as claimed in Claim 1 wherein the text can be displayed in different fonts and sizes.
3. EBR as claimed in Claim 2 wherein voice capability to read text and respond to voice commands are features.
4. EBR as claimed in Claim 3 wherein data can be entered using a pen and keyboard displayed on the screen.
5. EBR as claimed in Claim 4 wherein controls are present to allow navigation through different parts of the book.
6. EBR as claimed in Claim 5 where annotations and settings regarding a book reading session/s could be saved, edited, amended and retrieved as required.
7. EBR as claimed in Claim 6 wherein lightweight and portability are essential feature.
8. EBR as claimed in Claim 7 wherein it has minimum energy consumption. It can run on battery or the mains with a long-term aim of solar energy supply.



Application No: GB 9914389.3
Claims searched: 1-8

Examiner: David Keston
Date of search: 18 August 1999

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.Q): G4A (ADT, AUXX)

Int CI (Ed.6): G06F 1/16, 15/02

Other: Selected publications and online: EDOC, JAPIO, WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2317973 A (KAY) - see whole document	1-8
X	EP 0390611 A2 (HIUKA SANGYO) - see fig. 1, abstract and page 4 (line 22)	1-2, 5-8
X	WO 97/22097 A1 (MOTOROLA) - see fig. 1, page 12-14, 17, 24 (lines 31-35)	1-2, 4-8
X	WO 97/20274 A1 (EVERYBOOK) - see fig. 1 and pages 1-6, 11 (line 28)-12 (line 4) & 17-19	1-2, 4-8
X	WO 97/10541 A1 (PETRUZZI) - see fig. 1, abstract and pages 4 & 6	1, 5-8
A	WO 95/25326 A1 (VOICE POWERED TECHNOLOGY) - see abstract and pages 1-5	3, 4
X	US 5663748 (MOTOROLA) - see whole document	1, 4-8
X	US 5534888 (MOTOROLA) - see figs. 1, 4 & 5, abstract, col. 5 and col. 6 (lines 1-34)	1, 3-8
X	US 5467102 (TOSHIBA) - see figs. 1 & 17, abstract, and columns 11 & 12	1, 4-8

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.