

PAPER C: INFRINGEMENT AND VALIDITY OF SINGAPORE PATENT

**7 October 2009, Wednesday
1330 – 1730 hrs**

Maximum Time: 4 Hours (includes reading time)

Maximum Marks: 100



INTELLECTUAL PROPERTY
OFFICE OF SINGAPORE

INSTRUCTIONS TO CANDIDATES

1. This Paper consists of 22 pages, including this cover page.
2. Write your answers in English. Answers in any other language will not be marked. Answers in illegible handwriting will not be taken into consideration.
3. Only your answers and/or drawings to the question(s) written in the Answer Booklet(s) provided by the Examination Secretariat will be considered. You are to write on one side of each sheet in the Answer Booklet(s).
4. Marks are awarded more for the points selected for discussion and reasoning displayed than for conclusions reached.
5. Information provided in the question(s) may be obtained from actual situations or modified therefrom for the purpose of this examination. You should accept the facts given in the papers. Assume also that the prior art given is exhaustive.
6. Advise the client on infringement and validity of his patent and on the other questions asked by him. Your advice can be in the form of notes or a letter to the client but in either case you must provide the reasons for your advice.

To be continued

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7. The documents provided in the question are:

- (a) Letter from your Client (2 pages);
- (b) Document D1- Singapore patent no. 1000 ("SG1000") (6 pages of description plus claim and 4 pages of drawing);
- (c) Document D2 – A device in the Glide product range (2 pages of description and 2 pages of drawing);
- (d) Document A – Extract from the user manual of a portable music system (published in 1972) (1 page of description and drawing);
- (e) Document B – International PCT application no. PCT/US2006/000123 (2 pages of description and 1 page of drawing).

End

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Letter from your Client (1/2)

You are an in-house patent agent for the very large company Fairlie PLC. In January 2008 Fairlie PLC devised a range of electronic devices called "Glide". In October 2008 Fairlie
5 PLC began to manufacture the Glide electronic devices in Malaysia, to import them into Singapore, and to market them in Singapore under the Glide brand. A document describing the Glide range ("**Document D2**") is enclosed.

You receive a letter from the R&D department reading as follows:

10

7 October 2009

Dear In-House Patent Agent,

15

We have today received a letter from a company called FosCo, alleging that our Glide products infringe their Singapore patent no 1000 (here "**SG1000**"). We were not previously aware of this patent. FosCo is requesting that we stop selling Glide products, and pay damages for past sales.

20

Like Fairlie PLC, FosCo. is a very large, multinational company, whose products are sold side-by-side with the products of Fairlie PLC in many outlets in Singapore and internationally. Over the years the two companies have had many IP conflicts, though none directly related to the Glide range.

25

SG1000 is based on a patent application which as filed was identical to the patent as granted, except that claim 4 (marked in bold) was not present in the application as filed. Search and examination was requested, and the application was subject to a search which revealed the attached **Document A**, and a written opinion alleging that claims 1-3 "lack novelty and/or inventive step" over **Document A**. The applicant filed no response, and a Singapore examination report identical to the written opinion issued. Following the issuance
30 of the report, the applicant amended the application to add claim 4 (this was the only amendment to the application between filing and now), and then paid the Singapore grant fee. They have not filed anything at the Patents Registry since then. No corresponding patents were applied for outside Singapore.

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Letter from your Client (2/2)

We have noticed that our gaming division filed a PCT application (**Document B**) before the filing date of **SG1000** which shows a device slightly similar to that claimed in **SG1000**. No action has been taken with regard to this PCT application since it was filed, because we no longer consider the product of commercial importance.

Please write a memo explaining in detail:

- whether the Glide range infringes patent **SG1000**;
 - whether **SG1000** is valid;
 - whether we can take any action to improve our position;
 - if we take this action, whether FosCo can take any steps to improve their position;
- and
- whether FosCo's claim to back-damages is valid.

You need not consider any action which requires filing an action at a Court (although you may consider actions involving IPOS). In the present economic climate, we are certain that neither FosCo nor we will want to be involved in court proceedings.

We will let you know later whether the subject matter of **Document B** was put into the public domain before the filing date of **SG1000**. Please give your answers for each of the two possibilities: (i) that it was, and (ii) that it wasn't.

Yours faithfully,

W. Collins

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Document D1- Singapore patent no. 1000 ("SG1000") (1/10)

Singapore patent no. 1000 ("SG1000")

Patentee: FosCo

5 Application date: 1 March 2007

Publication date: 1 September 2008

No priority claim

Date of grant: 1 October 2008

10 Field

The field of the invention is data entry into items of consumer electronics.

Background

15

Many people spend much time each day entering data into electronic devices such as computers, using data entry devices such as keyboards, joysticks etc. Each of these devices has its own advantages, which make it suitable for use for particular forms of data entry. For example, a keyboard has a large number of keys corresponding to the letters of the alphabet plus punctuation and control characters. A joystick is suitable for inputting directional information, such as for controlling a game.

20

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One particularly challenging task is data entry to a small mobile device, such as a mobile telephone, and in which size constraints limit the number of keys. A conventional solution to this task is shown illustrated in Fig. 1, which shows a mobile phone having a cuboidal casing with an outer profile 1 and a screen 3. Keys 31, 32, 33, ...39, 40, 41, 42 are provided in an array on what, in use, is the flat upper surface of the casing of the telephone. Each key can be depressed and has a respective sensor located underneath it for detecting when the key is depressed. Key 31 is associated with the number 1. Key 41 is associated with the number 0. Each of the keys 32, 33, ...39 is associated with one numeral and multiple letters. The numeral and letters are printed on the key. For example, the key 32 is printed with the characters "2", "a", "b" and "c".

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Document D1- Singapore patent no. 1000 (“SG1000”) (2/10)

The telephone has multiple modes of operation. It is possible to switch between these modes of operation by depressing the keys 40, 42.

5

In one mode of operation (used for example when the user is dialing a telephone number), the keys 31-39 and 41 are used for typing a telephone number digit-by-digit. For example, depressing the key 32 causes the telephone to register the numeral 2. After a complete telephone number has been typed, one of the keys 40, 42 can be used to cause the phone to dial the telephone number.

10

In another mode of operation (for example, when composing an SMS (“short messaging service”) message) the keys 32-39 are used for selecting letters. For example, the key 32 is used to select one of the letters “a”, “b” or “c”. For example, to enter a “b”, the user is obliged to depress the key 32 twice in quick succession. Key 31, which is printed only with one character “1” can be pressed multiple times to register punctuation characters, and/or to indicate that the user intends to type an upper or lower case character. In this mode, depressing the key marked 41, instructs the mobile phone to register a space. Once a complete message has been typed, one of the keys 40, 42 can be used to cause the message to be transmitted, e.g. to a previously dialed number.

15

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Composing SMS texts rapidly becomes tedious. For example, entering even a simple text such as “woman in white” requires 24 key-presses to enter the 14 characters (including 2 spaces). Furthermore, since the letters “o” and “m” are associated with the same key 36, the user must pause between typing these two letters, or risk the phone registering the wrong meaning.

25

The number of key-strokes can be reduced somewhat by incorporating a dictionary into the mobile telephone. This permits the mobile phone to guess which word in the dictionary the user is aiming for based on the first few selected letters (e.g. once the user has entered “woma” the processor is likely to be able to guess that the full word will be “woman”). However, these solutions add further complexity to the task of data entry. Nor are they any use when entering a word such as “Wilkie” which is not likely to be present in the dictionary.

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Document D1- Singapore patent no. 1000 ("SG1000") (3/10)

Present Invention

- 5 The present invention proposes a mobile telephone, or other item of consumer electronics, as defined in the appended claims.

The invention makes possible data entry in which each key element is sensitive to multiple simple actions. For example a single key element might be able to distinguish between motions leftwards, rightwards, upwards or downwards. If three of these simple actions were associated with different respective letters, then the user would be able to indicate each of these three letters by a single respective simple action. This is different from the key of the known mobile phone described above, which is only able to register a single action (i.e. the key being depressed), so that selecting one of multiple letters associated with a single key will typically require a compound action, in which the key has to be depressed at multiple times. Yet the key elements of the present invention may be no wider than the keys of a known device.

The invention provides both items of electronics employing the key elements, and a key element for use in a mobile telephone.

Figures

- Fig.1 shows a known mobile telephone device
- 25 Fig. 2 is a top view of a key element for a mobile telephone device according to a first embodiment of the invention.
- Fig. 3 shows a mobile telephone incorporating nine key elements of the type shown in Fig. 2.
- Fig. 4 is composed of Fig. 4(a) which is a cross-section of the key element of Fig. 2 in the plane marked A-B in Fig. 2, and Fig. 4(b) which is a perspective view.
- 30 Fig. 5 is a cross-sectional view of the key element of Fig. 2 when being pressed.
- Fig. 6 is a top view of a key element for a mobile telephone in a second embodiment of the invention.

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Document D1- Singapore patent no. 1000 (“SG1000”) (4/10)

Detailed Description

5 As shown in Fig. 3, the mobile phone of the invention has (as in the known phone) a cuboidal casing 1 and a screen 3 on its upper surface. Also on its upper surface is an array of nine key elements 51, 52,59, each having a circular upper surface. The upper surface also includes three conventional keys 40, 41, 42 which have the same meanings and functions as in the known mobile telephone of Fig. 1.

10

Each of the key elements 51, 52,59 has the same construction, and they differ only in the characters which are printed on their upper surface. Fig. 2 shows the key element 52 in top view. It is circular viewed from this direction, and is printed with the characters “2”, “d”, “e” and “f”.

15

A cross-section of the key element 52, in the plane marked A-B in Fig. 2, is shown in Fig. 4(a). A perspective view is shown in Fig. 4(b), and Fig. 4(b) also shows the plane A-B.

20 Key element 52 comprises a unitary body 10 of rubber in a “mushroom” shape, that is having an upper rubber disc 11, and a rubber cone 13 which is fixed in relation to the casing. For example the end of the rubber cone 13 opposite the disc 11 can be adhered to a circuit board within the casing. The disc 11 is supported on the tip of the cone 13, and thus resiliently maintained with its circular upper surface horizontal. The body 10 has an axis 15 of circular symmetry (shown in Fig. 4(a)). This extends in a direction which is into the paper in Fig. 2.

25

Beneath the disc 11, the cone 13 is surrounded by four sensing elements 61, 62, 63, 64, at equal angular spacing about the axis 15. If pressure is applied to the upper surface of the disc 11 at a position spaced from the axis 15 (such as the position marked 17 in Fig. 4(a)),
30 the disc 11 is tipped to one side, as shown in Fig. 5. If the degree of tipping is sufficient then the disc 11 comes into contact with one of the sensing elements 61, 62, 63, 64, which consequently generates a respective signal. One natural way for a user to tip the disc 11 is to press his finger at the centre of the upper surface of the disc 11, and then slide his finger

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Document D1- Singapore patent no. 1000 (“SG1000”) (5/10)

slightly in the direction towards one of the printed characters, so that pressure is applied by the finger to the disc 11 to one side of the axis 15.

5

The respective signals generated by the sensors 61, 62, 63, 64 are sent to a processor (not shown) within the casing, which accordingly registers which of the sensors 61, 62, 63, 64 has been contacted by the disc 11.

- 10 The characters “2”, “a”, “b”, and “c” are at circumferential positions around the disc 11 in register respectively with the positions of the sensors 61, 62, 63, 64. Thus, when a user presses the upper surface of the disc 11 at one of the locations where a printed character appears sufficiently to tip the disc 11 so that the disc 11 contacts the corresponding one of the sensors 61, 62, 63, 64, the processor registers this fact. In this manner, the user is able
- 15 to enter into the processor data which is a selection of one of the four printed characters.

Note that the key element can be constructed in many ways having greater or lesser similarity to conventional keys.

- 20 For example, while the only moving component of the key element shown in Figs. 4 and 5 is the disc 11, in other embodiments there may be multiple mutually moving components. For example, Fig. 6 is a top view of the key element 52 in a second embodiment of the invention which differs from the first embodiment only in the construction of the key elements. The key element 52 of Fig. 6 comprises four, roughly triangular moveable portions 71, 72, 73, 74
- 25 which are not mechanically coupled to each other, and which can each be independently depressed. The moveable portions 71, 72, 73, 74 are each provided with a respective sensor to detect the depression. The set of moveable portions 71, 72, 73, 74 function as a single key element in the sense that a user with his finger in the centre of the key element 52 is able to displace his finger in any of four transverse directions (toward the centres of the
- 30 moveable portions 71, 72, 73, 74 respectively) and make a corresponding selection (depress that moveable portion).

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Document D1- Singapore patent no. 1000 ("SG1000") (6/10)

Claims

- 5 1. An item of electronics having a casing presenting a surface, and a plurality of key elements laid out in an array on the surface, each key element being sensitive to a respective plurality of simple actions, whereby a user can use a single one of said key elements to select one of a plurality of options by performing the corresponding simple action in relation to that key element.
- 10
2. An item according to claim 1 in which the simple actions are motions directed respectively left, right, up or down.
3. An item according to claim 1 in which alphanumeric characters are displayed in
- 15 positions indicative of the respective options.
4. **A key element for use in a mobile telephone, the key element being sensitive to a plurality of simple actions associated with a plurality of respective alphanumeric characters, whereby a user can select one of the alphanumeric characters by**
- 20 **performing the corresponding simple action.**

25

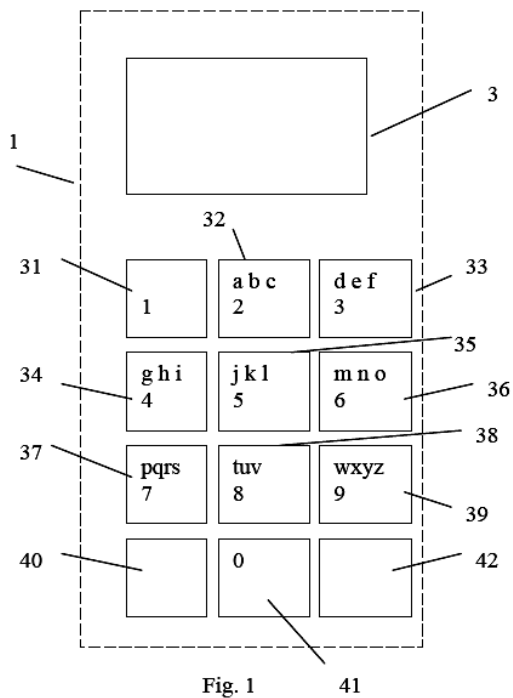
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Document D1- Singapore patent no. 1000 ("SG1000") (7/10)

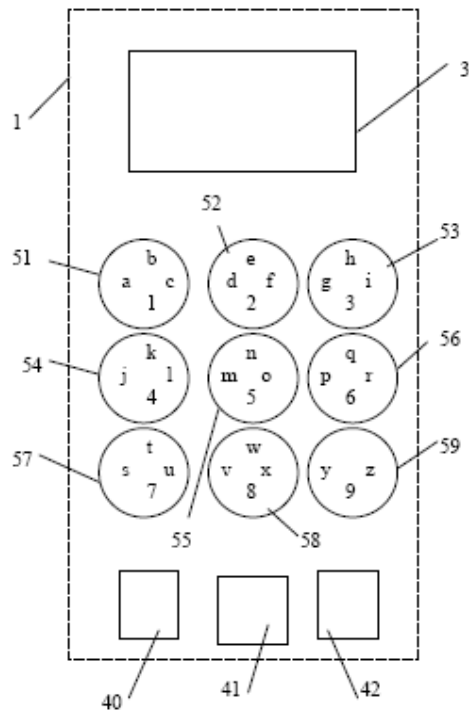
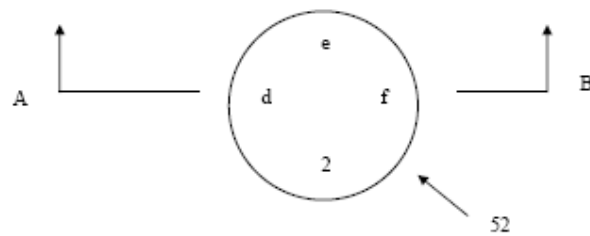


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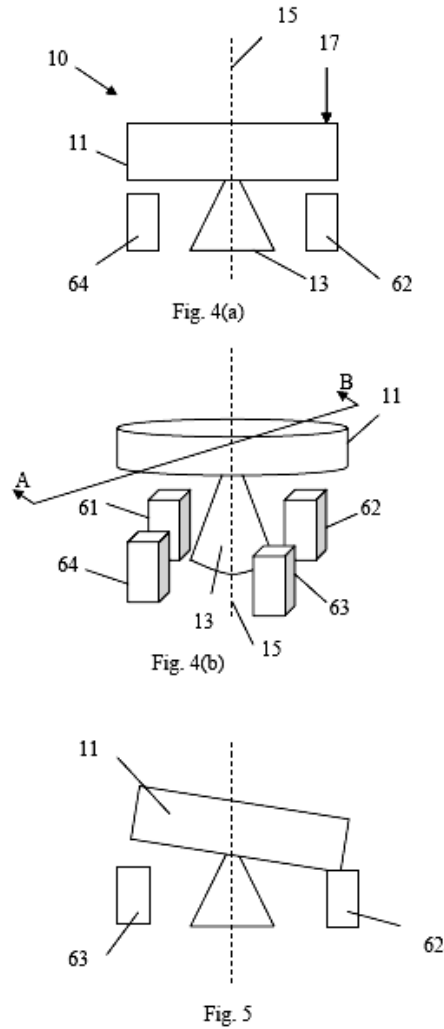


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Document D1- Singapore patent no. 1000 ("SG1000") (9/10)



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Document D1- Singapore patent no. 1000 ("SG1000") (10/10)

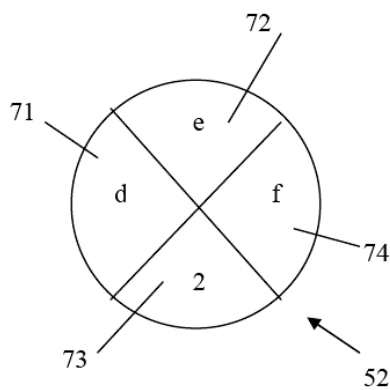


Fig. 6

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Document D2 – A device in the Glide product range (1/4)

A typical device in the Glide product range is illustrated in Fig. 1. It has a cuboidal outer profile, and one of its major surfaces includes a screen 1 and a square touch-sensitive area 3. The touch sensitive area 3 is capable of registering a touch at any point of the area 3 to an accuracy of within 1 mm. Vertical lines 11, 13 and horizontal lines 21, 23 are printed onto the touch sensitive area 3, partitioning it into nine square blocks. Also printed on the area 3 are various letters and numbers shown in Fig. 1.

A user is able to input one of the characters by placing the tip of his finger (or pen) at any place in the square containing the numeral character, and moving that tip in the direction in which the character lies compared to the centre of the square.

For example, to indicate “2”, the user places the tip of his finger or pen within the square containing the numeral “2” and the letters “d”, “e”, “f”, and moves it upwards through the square.

In this way, a user is able to indicate one of multiple choices in each square using a single stroke.

Note that the position at which the square is initially contacted is not relevant. Provided that, at successive times, the contact sensitive area registers a touch at respective locations in a single square, the device will derive a vector connecting those two locations, compare that vector to the direction from the centre of the square towards any of the printed characters within the square, and, if a match is found (to within a certain angular accuracy) recognize that character.

Thus, for example, Fig. 2(a) shows an enlarged view of the square containing the numeral “2” and the letters “d”, “e” and “f”. The user can equally well indicate to the phone a selection of “2” by stroking the screen with the tip of his pen from position 5 to position 6 (as shown in Fig. 2(b)), or from position 7 to position 8 (as shown in Fig. 2(c)), since both of the two vectors shown by arrows are parallel to the vertical vector from the centre of the square

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Document D2 – A device in the Glide product range (2/4)

towards the printed “2”. Note that the vectors from 5 to 6 and from 7 to 8 will still be recognized as vertically upward even if in fact they depart from the vertical by a few degrees.

5

This means that the user does not have to locate his finger any more accurately than in a conventional telephone having keys of the same size as the squares of the glide product. He just has to ensure that his fingertip contacts the correct square, and moves in the right general direction.

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Certain of our Glide devices contain internal circuitry to function as mobile telephones. Other Glide devices function as PDAs, or even ultra-light word-processing devices for travelers.

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Document D2 – A device in the Glide product range (3/4)

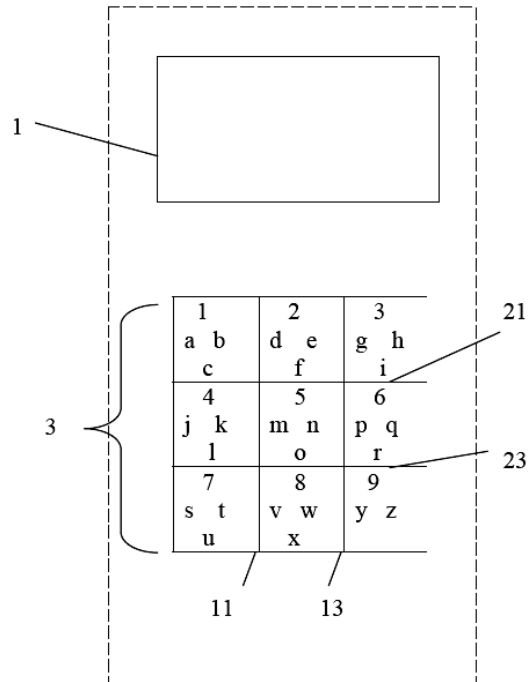


Fig. 1

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Document D2 – A device in the Glide product range (4/4)

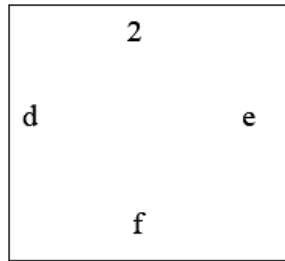


Fig. 2(a)

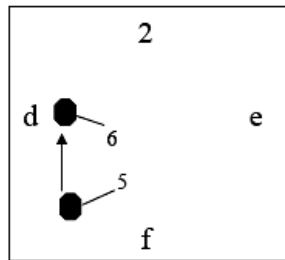


Fig. 2(b)

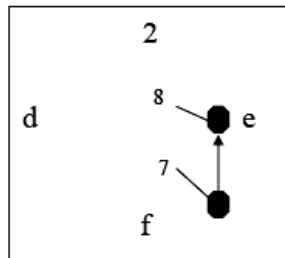


Fig. 2(c)

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Document A – Extract from the user manual of a portable music system
(published in 1972) (1/1)

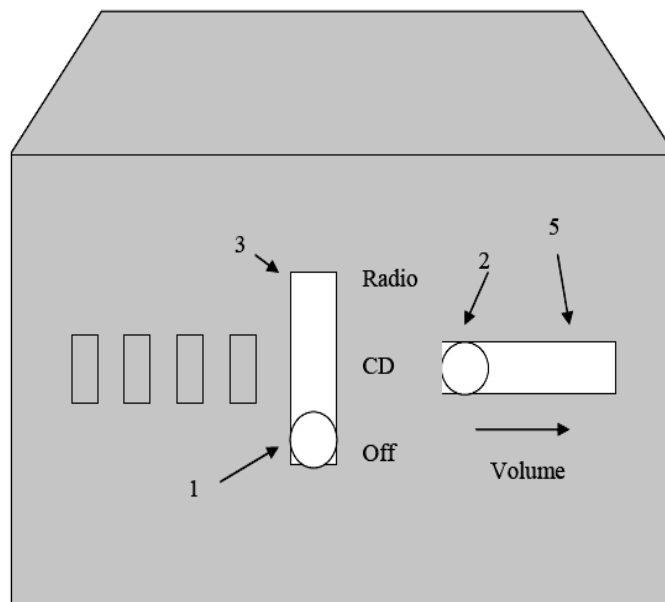


Figure A

5 ...The music system is capable of playing CDs or radio. Referring to Figure A, select the desired mode by sliding knob 1 upwards within the channel 3 from the “off” position to either of the positions marked “CD” or “Radio” respectively.

Volume is controlled by sliding the knob 2 within the channel 5. Volume increases with small
10 steps correspondingly as the knob 2 slides to the right.....

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Document B - International PCT application no. PCT/US2006/000123 (1/3)

No priority claim

5 Filed: 1 February 2007

We propose a data input device for a computer or other electronic device. The computer may be one implementing a computer game, such as a racing game or a battle game.

10

It is well-known to control a computer which is running game software using a joystick device. The joystick device is a rod extending upwards from a main body of the joystick device. The rod is resiliently maintained in a central “rest” position, and can be tilted away from that position to the left, to the right, upwards and downwards. Sensors measure the tilting motion, and transmit corresponding data to a computer.

15

For example, if the computer is running a game in which a character is within a maze (an example of a “gameworld”), the four directions in which the joystick can be tilted can correspond to four directions in which the character can move in the maze. Thus, by repeatedly tilting the joystick rod, the user can move the character through the maze.

20

This degree of control was sufficient for the computer games popular in the 1980s, but modern computer games are far more sophisticated. A character in the game may be controlled not just to move, but to move individual limbs (for example, so that the character can fight other characters, or participate in a realistic game of tennis). It is therefore highly desirable to provide a computer game input device which is able to provide much more sophisticated data entry than a simple joystick.

25

The present invention as shown in Fig. 1 shows a game input device proposed by the present invention. It comprises a trapezoidal box 1 having a surface 2, and five cavities 3, 4, 5, 6, 7 formed in the surface 2. The cavities are carefully arranged in the respective rest positions of the fingers and thumb of a user’s right hand. Each of the five cavities has a generally cubic form, i.e. with four square faces (“side walls”) perpendicular to the surface 2,

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Document B - International PCT application no. PCT/US2006/000123 (2/3)

and a square end-face at the bottom of the cavity parallel to the surface 2. In use, the user inserts the digits of his right hand into the respective cavities.

5

All cavities 3, 4, 5, 6, 7 have the same construction. Figure 2 shows a closer view of the cavity 3. The cavity 3 contains four sensors 8, 9, 10, 11 which are respectively on the side walls of the cavity 3.

10 The data input device is able to detect the contact of the user's finger or thumb with any one of the four sensors. In this way, the user is able, just by moving a single one of his digits slightly to contact one of the four sensors 8, 9, 10, 11, to indicate any of four respective commands to the data input device. The data input device passes the information to a computer.

15

Since the user can activate any of the four sensors with any of his five digits, any of 20 different commands can be transmitted to the computer. More generally, the invention may be of use in any context in which data is to be input to an electronic device using few finger movements. If the computer is a game computer, it is up to the ingenuity of the author of the computer game software how this data is used.

20

For example, the computer game may be such that the user can use one of his fingers to control the 2-dimensional motions of a character within the gameworld, and use another of his fingers to control the motions of a second character in the gameworld.

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Document B - International PCT application no. PCT/US2006/000123 (3/3)

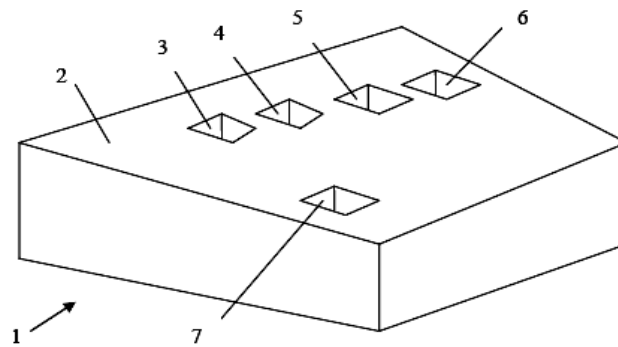


Fig. 1

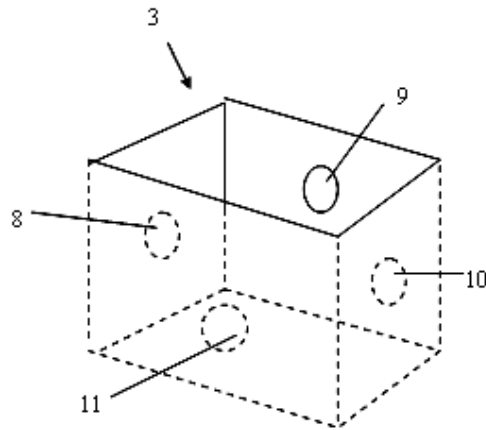


Fig. 2

THE END