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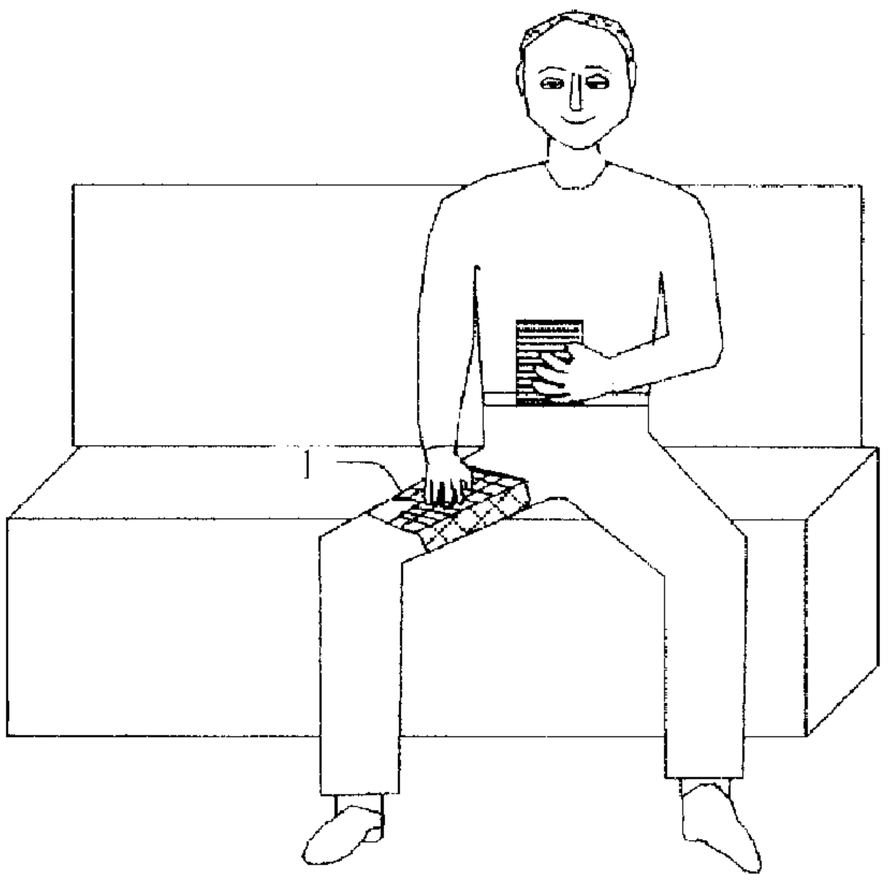
(54) Titre : CLAVIER PRET-A-PORTER ET PORTATIF UTILISABLE A UNE SEULE MAIN
(54) Title: A WEARABLE AND PORTABLE KEYBOARD OPERABLE WITH ONLY ONE HAND



(57) Abrégé/Abstract:
This wearable and portable keyboard is an one-hand operable and vertically modified with respect to a conventional keyboard and attached onto a person's thigh (on the clothing or under the clothing) and is used to enter text and data into the electronic devices such as cell phones, Personal Digital Assistants (PDAs), or portable hand-held computers via a cable attachment or a secured wireless means. The wearable, portable keyboard is implemented as a vertically modified keyboard which is strapped onto a person's thigh as shown in FIG.2. This keyboard is an accessory for entering teat and data into a cell phone, a PDA (Personal Digital Assistant) or a portable computer. This innovative keyboard is operated by one hand. Nonetheless, it has all the standard keys of a conventional keyboard. It is also designed with our finger sizes in mind. Therefore, instead of operating a PDA or cell phone with our thumbs, when we are moving around, on a bus, on a train, or sitting on a bench, we use our PDAs or cell phones to monitor what we punch on the keyboard attached to other thigh with our fret hand. Furthermore, these keyboards may be worn under the clothing or on the clothing. They could be made transparent made of durable nylons or polymers, or they can be made of other waterproof light fabrics. A cable may be used to send the stream of text or data to a cell phone or a PDA via USB or serial port (e.g. RS-232). More conveniently, the keyboard can send data to the devices wirelessly using already available technologies such as the Blue-Tooth or a radio frequency (RF) transceiver. But attention must be made to the security of the data on the later case, for example the data must be coded randomly for each individual keyboard made which may be hard coded in the keyboard circuitry or can be changed as frequent as need by the owners of the keyboards.

Title: A wearable and portable keyboard operable with only one hand[1]

Abstract

This wearable and portable keyboard is an one-hand operable and vertically modified with respect to a conventional keyboard and attached onto a person`s thigh (on the clothing or under the clothing) and is used to enter text and data into the electronic devices such as cell phones, Personal Digital Assistants (PDAs), or portable hand-held computers via a cable attachment or a secured wireless means.

The wearable, portable keyboard is implemented as a vertically modified keyboard which is strapped onto a person`s thigh as shown in FIG.2. This keyboard is an accessory for entering text and data into a cell phone, a PDA (Personal Digital Assistant) or a portable computer. This innovative keyboard is operated by one hand. Nonetheless, it has all the standard keys of a conventional keyboard. It is also designed with our finger sizes in mind. Therefore, instead of operating a PDA or cell phone with our thumbs, when we are moving around, on a bus, on a train, or sitting on a bench, we use our PDAs or cell phones to monitor what we punch on the keyboard attached to other thigh with our free hand. Furthermore, these keyboards may be worn under the clothing or on the clothing. They could be made transparent made of durable nylons or polymers, or they can be made of other waterproof light fabrics. A cable may be used to send the stream of text or data to a cell phone or a PDA via USB or serial port (e.g. RS-232). More conveniently, the keyboard can send data to the devices wirelessly using already available technologies such as the Blue-Tooth or a radio frequency (RF) transceiver. But attention must be made to the security of the data on the later case, for example the data must be coded randomly for each individual keyboard made which may be hard coded in the keyboard circuitry or can be changed as frequent as need by the owners of the keyboards.

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[1] This application claims priority from previous application number 2,408,180 filled in OCT. 11, 2003.

Description

BACKGROUND OF THE INVENTION

The present invention relates to the wearable and portable keyboards, particularly a one-hand operable and vertically modified wearable and portable keyboard that is secured onto a person's thigh.

Today's keypads of the PDAs and cell phones are so small and compact that we have to operate them by our thumbs or a stylus. Of course, PDAs are popular because they are smaller, more portable and cheaper alternatives to computers and laptops. And, sending small massages over the cell phones is very popular these days because of its portability. These are the reasons why people are willing to type onto these electronic devices with hardship. Even they are using short-hand to use less amount of alphabets when sending short massages to each other over the cell phones.

Of course there are portable, flexible, and foldable keyboards which are pocket sized and can be used anywhere and whenever you want to type a text into a PDA. Some examples are the new flexible keyboards or the rigid and foldable keyboards. The limitation with these portable keyboards is that you still need a supporting rigid desktop to use them. Even there is an invention called stealth keypad with only a few keys to control and enter a text, and, based on its inventor(s), it is concealed inside the palm of a person's hand. But this keypad comes short in case of the speed of typing a text and they are not in common use because of the complexity of the key representation.

In spite of all advances in speed of downloading and uploading, still when it comes to typing a paragraph of text into a cell phone or a Personal Digital Assistant (PDA) on a train, on a bus, or on a bench at the park we are at the speed of turtles.

In short, we need an inputting device that is portable, flexible, and even stealthy and can be used without any external rigid desk. In addition, the size of the keys on the keyboard should be as large as our fingers to make the experience of typing as comfortable as possible with less error.

Then we may only need a cell phone or a wireless PDA to send and receive information, which can be stored locally on a memory flash card, or it can be stored remotely on a computer at home, at office, or even on storage devices provided by the data-storage specialty companies.

SUMMERY OF THE INVENTION

The wearable and portable keyboard according to the invention is a vertically modified, touchable keyboard, which is strapped onto a person's thigh as shown in FIG. 2. The keyboard is designed to be operated by single hand only, but the necessary keys are the same as a standard touchable desktop computer keyboard (the function keys are not crucial for our applications but can be embedded into the keyboard design if needed) .

The key sizes on this inventive and original keyboard (1) are the same as our finger sizes. Figures are not to scale. Furthermore, I also propose to make these inventive keyboards in three different sizes such as small, medium, and large, naturally, because people have different finger sizes.

In addition, the alphabetic letters on this keyboard are separated from other characters. This arrangement will make typing easier and faster even without looking at the keyboard after people get used to the keyboard.

A difference between this innovative keyboard and a regular keyboard is that the key sequence (ABCDE) on this keyboard is the same as the English alphabetic order, as oppose to a QWERTY conventional keyboard.

The alternative designs of this keyboard are shown in FIG. 3, FIG.4, FIG.5, and FIG.6. We can make the arrangement of the keys on the keyboard to make it longer and with less width (FIG.3, FIG.6) or to make them shorter and with more width (FIG. 4, FIG.5).

Nonetheless, all of these keyboards are equipped with an embedded pressure sensitive area (5). Still an alternative to a touchpad is to make these keyboards to include a small trackball.

The buffer (2) immediately under the keyboard and above the base is made of a hard and rigid material to make the data entry accurate. Of course, the buffer can be made of a less rigid material based on customers need. In addition, the buffer may be segmented to make the keyboards foldable. The base and straps (3) of this unique keyboard is made of soft plastic or rubber or a durable and waterproof fabric. The locking mechanism (4) is made in many conceivable shapes and forms. Some of the variations are like those protective gears' locking mechanism, or belt buckles.

Another variation of the keyboard can be made of transparent material such as durable plastics or the new polymers. The electrical contacts inside each transparent key are either transparent themselves, made of the new available conductive polymers, or non-transparent but very thin cupper wires. We prefer the transparent variation of the keyboard because it is stealthy. Because these keyboards are almost invisible their base, straps, and locking mechanism can also be transparent plastic or polymers. Furthermore, these transparent keyboards can also be made to stick to the clothing by means of fabric-adhesive. The keyboard is pilled off whenever is necessary and put backed on the clothing as needed.

Basically, any variation of materials can be used for the base of the keyboard, but the keyboard itself must be water-proof, light, durable, and reusable to make this inventive product popular and in common use.

Another variation to make these keyboards even more stealthy is to wear them underneath the clothing like elastic sport shorts' legs. In this case, special attention must be made to the material of the base. Obviously, this variation is more attractive for experienced keyboard users who type without looking at the keyboard. Furthermore, attention must be made in designing the circuitry of these keyboards to make them heat tolerant because of the body heat.

The manually entered text and data is sent to the cell phone, PDA, or any electronic device by means of either a separable keyboard cable (e.g. USB cable, RS-232), or more conveniently wirelessly. The keyboard circuitry can send data to the devices wirelessly using already available technologies such as the Blue-Tooth or a radio frequency (RF) transceiver. However, attention must be made to the security of the data on the wireless case. For example, the data must be coded for each individual keyboard. The coding password may be hard-coded in the keyboard circuitry or can be changed as frequent as need by the owners of the keyboards. The integrated circuitry used inside these keyboards is made of durable flexible circuit boards.

DESCRIPTION OF THE DRAWINGS

FIG.1 is a side view of a person in sitting position holding an electronic device in one hand and operating (typing and navigating) it with other hand by using our invention, keyboard and touch pad or roller-ball, attached to the other leg.

FIG.2 is a front view of a person sitting down on a bench and holding an electronic device such as a cell phone, a Personal Digital Assistant (PDA), or a portable hand-held computer in one hand and operating it with the other hand by using our inventive keyboard (1) attached onto the person's opposite leg.

FIG. 3 is a top view of the wearable keyboard with a touch pad or a roller-ball on its top right side and the leg straps (3) with a locking mechanism are shown on each side of the keyboard and are not to scale. This is the first of many varieties of designs of key configuration for our wearable, one-hand operable keyboard. The key configuration resembles a matrix format. This particular format is comprised of 5 columns and 17 rows. Alpha characters are conveniently located at the middle of keyboard without any other characters sharing their space. The numeric characters are at the top rows of the alpha character keys. Control characters as well as special characters are located at the bottom of the alpha character keys.

FIG. 4 is a top view of the wearable keyboard with a touch pad or a roller-ball on its top right side and control characters are located at the bottom of the wearable, one-hand operable keyboard. This keyboard-matrix format is comprised of 6 columns and 15 rows. Alpha characters are purposely located at the bottom of the middle of keyboard. This particular keyboard arrangement would convenience those who type more alpha characters than any other characters.

FIG. 5 is a top view of the wearable keyboard with a touch pad or a roller-ball on its top right side and control characters are located at the bottom of the one-hand operable keyboard. The matrix format on this keyboard is comprised of 6 columns and 15 rows. The arrangement of the keys is basically the same as keyboard depicted in FIG. 4, except the location of the numeric keys and alpha keys are moved up two rows.

FIG. 6 is a top view of the wearable keyboard with a touch pad or a roller-ball on its top right side and control characters are located at the bottom of the one-hand operable keyboard. The matrix format on this keyboard is comprised of 5 columns and 17 rows. Alpha characters are located conveniently on the left-hand side the keyboard. And numeric keys are on the right-side of the alpha characters. The Insert, Home, Delete, PageDown, PageUp, Esc, arrow keys, and the other characters found on a regular computer or a Personal Digital Assistants (PDA) are located on the right-hand side of the keyboard. In addition, the control characters are located on the bottom of the keyboard.

FIG. 7 is a side view of the whole one-hand operatable keyboard. Part [1] is the keyboard itself. Part [2] is a hard piece of material to make typing more accurate. Part [3] is the strap. And part [4] is a buckle to fasten the straps together in order to secure the keyboard apparatus on the operator's upper-leg. Please, note that the keyboard also can be attached onto keyboard operator's clothing. Or the keyboard can be sewn into a person's piece of clothing.

This application claims priority from previous application number 2,408,180 filled in OCT. 11, 2003.

Claims

I claim;

1.A wearable and portable keyboard which is one-hand operable and vertically modified with respect to a conventional keyboard and strapped onto a person's thigh (on the clothing or under the clothing) and is used to enter text and data into the electronic devices such as cell phones, Personal Digital Assistants (PDAs), or portable hand-held computers via a cable attachment or a secured wireless means comprising:

a wide leg strap with a locking mechanism;

a vertically stretched mount;

a set of plurality of keys on said vertically stretched mount, each set of said keys arranged in a plurality of long columns and short rows;

an electronically touch sensitive pad or a roller-bal, and

a secure wireless means to communicate to electronic devices.

2. A wearable and portable keyboard which is operated with one-hand and vertically modified with respect to a conventional keyboard and is sewn or adhere onto or into a piece of clothing which covers a person's thigh such as upper legs of a pair of pants and is used to enter text and data into the electronic devices such as cell phones, Personal Digital Assistants (PDAs), or portable hand-held computers via a cable attachment or a secured wireless means comprising:

a wide leg strap with a locking mechanism;

a vertically stretched mount;

a set of plurality of keys on said vertically stretched mount, each set of said keys arranged in a plurality of long columns and short rows;

an electronically touch sensitive pad or a roller-bal, and

a secure wireless means to communicate to electronic devices.

3. A wearable, portable keyboard as defined in claim 2 wherein said plurality of keys is made from transparent plastics or polymer and encapsulated between two sets of weatherproof material.

This application claims priority from previous application number 2,408,180 filled in OCT. 11, 2003.

Application number / numéro de demande: 2465546

Figures: 7 (seven)

Pages:

Unscannable items
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(Request original documents in File Prep. Section on the 10th floor)

Documents reçu avec cette demande ne pouvant être balayés:
(Commander les documents originaux dans la section de préparation des dossiers au 10ème étage)

FIG. 1

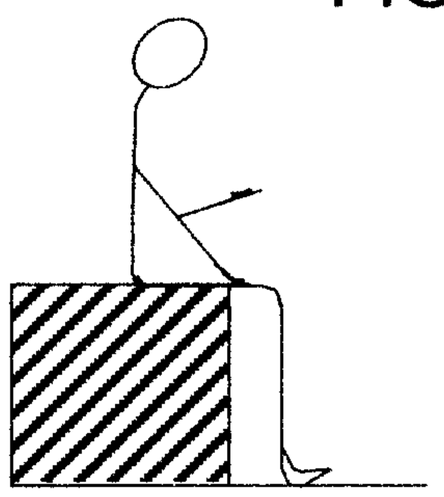
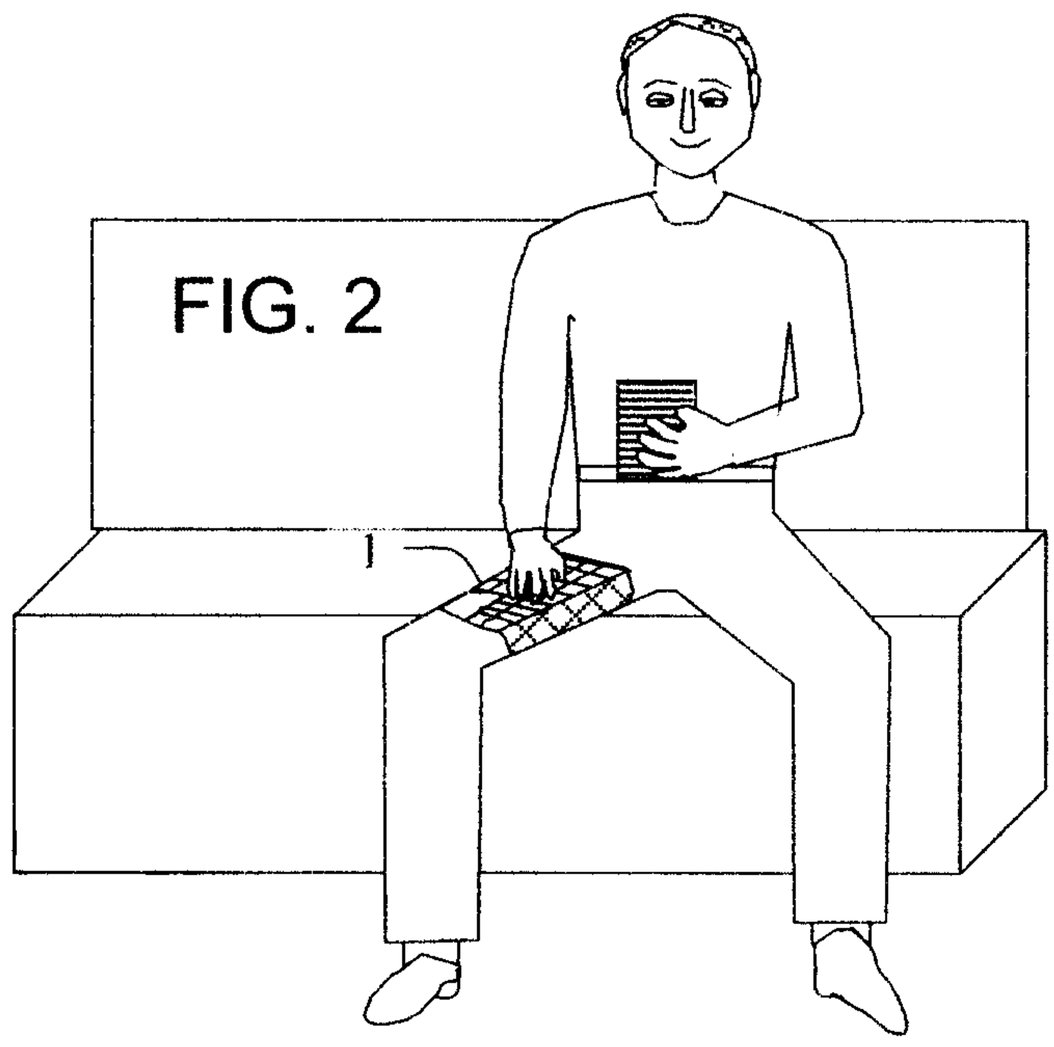


FIG. 2



This application claims priority from previous application number 2,408,180 filled in OCT. 11, 2003.

Insert	Home	Page Up	Touch Sensitive Pad	
Delete	End	Page Down		
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FIG. 3

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FIG. 4

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FIG. 5

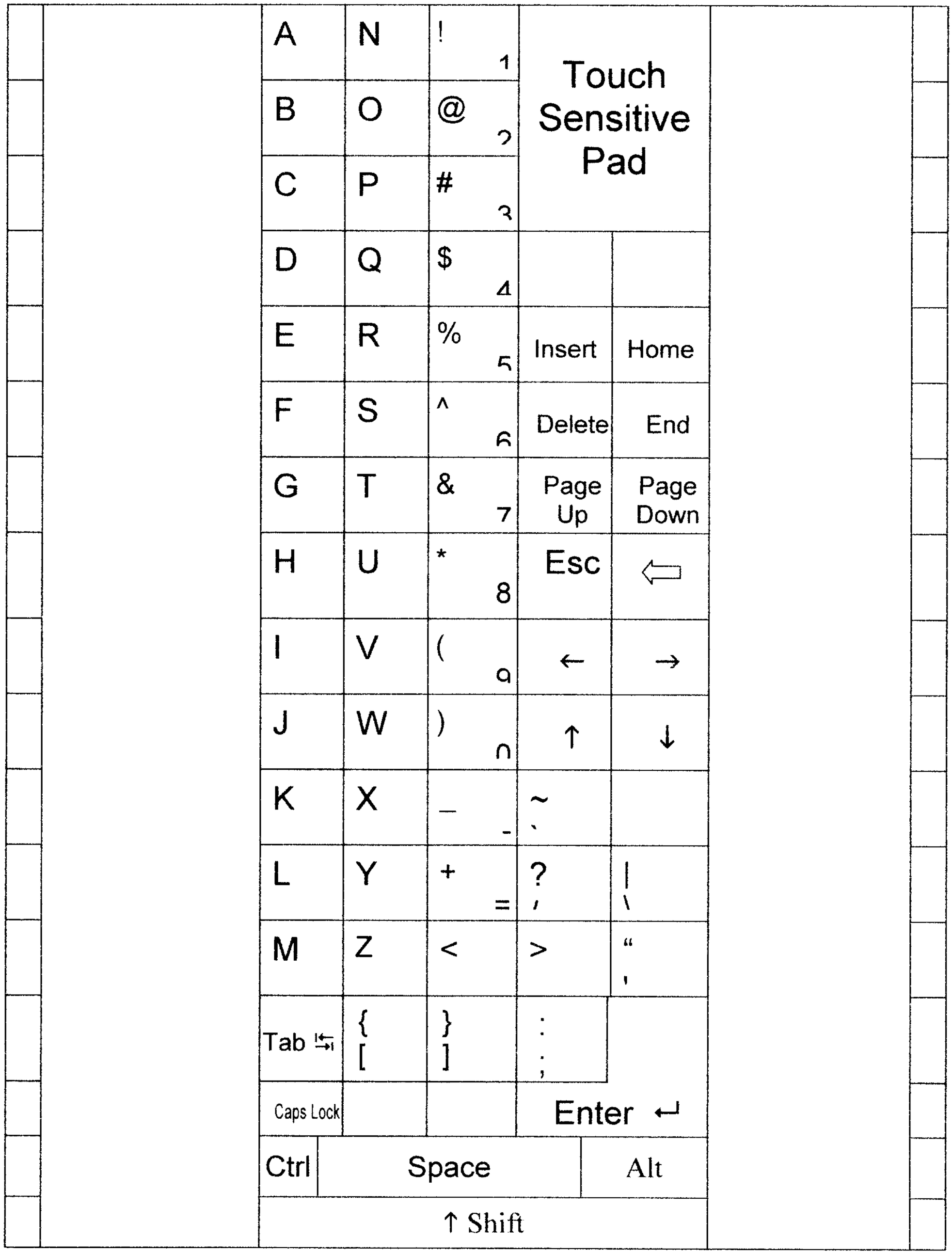
A N !1
B O @2
C P #3
Touch Sensitive Pad
D Q $4
E R %5 Insert Home
F S ^6 Delete End
G T &7 Page Up Page Down
H U *8 Esc ⇦
I V (9 ← →
J W)0 ↑ ↓
K X _- ~`
L Y += ?/ |\
M Z < > “ ‘
Tab ⇆ { [}] : ;
Caps Lock Enter ↵
Ctrl Space Alt
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FIG.6