AN ALPHABET CHARACTER INPUT DEVICE

Background and Field of the Invention

This invention relates to an alphabet character input device more particularly but not exclusively to a keyboard or keypad for use with a computer, electronic typewriter, word processor, digital assistant, personal organizer or suchlike.

The traditional and widely-used QWERTY keyboard came about during the days of the mechanical typewriter, and was designed to reduce typing speed and avoid commonly pressed keys in close proximity in order to prevent the keys' striker-levers from jamming.

There are several inherent problems with the QWERTY keyboard. Firstly, it is difficult to learn, needing weeks if not months of instruction and practice. Consequently, a large number of keyboard users have never learned to type efficiently, and have to constantly look down at the keyboard in order to pick and peck. This leads to the second problem – poor posture, a cause of fatigue and strain and pain in the neck and shoulders. Thirdly, and more importantly, because the keyboard is not user-friendly it dissuades certain groups of potential users and retards the accessibility and growth of computer use and technology.

Another problem with conventional keyboards and another legacy of the mechanical typewriter is the traditional rectangular keyboard design. This was

designed to conform to the needs of the machine rather than to the hands. The arrangement of the keys, in lateral straight lines, forces the wrists to contort at an angle, causing strain and repetitive movement illnesses such as carpal tunnel syndrome.

In spite of the advance towards the use of the electronic keyboards, the QWERTY and rectangular designs are still being widely used, more out of inertia than good sense. The rare and relatively unsuccessful attempts to rectify the situation include:

a. the angled "Microsoft" keyboard, and various ergonomic split keyboards which retain the QWERTY key arrangement, and hence the related difficulties mentioned above
b. the Dvorak keyboard, which replaces the QWERTY key arrangement with an arrangement that takes into account frequency of use of the various alphabets. Although some improvement over the QWERTY, the Dvorak key arrangement is still not intuitive and requires relearning and a good deal of memorization.

It as an object of the invention to provide a novel alphabet character input device which alleviates at least one problem of the prior art or provides the public with a useful choice.

SUMMARY OF THE INVENTION

According to the invention in a first aspect, there is provided an alphabet character input device having a plurality of consonant and vowel keys wherein the consonant keys are divided into a plurality of alphabetically ordered groups, each group being alphabetically separated from the next by a vowel.

Preferably, the keys of each group are in a separate row. The vowel keys may be grouped together, preferably in alphabetical order with the spacing between the vowel keys at at least one end of the group being greater than the spacing at the middle of the group. At least one vowel key at one end of the group may be larger than in the middle of the group. The vowel keys may furthermore be disposed at a suggested position of rest of the typing fingers of one hand of a user.

Preferably a space key, a return key and 3 consonant keys are disposed at a suggested position of rest of the typing fingers of one hand of a user.

Each consonant group is preferably distinguishable from the others by sight or touch and the vowel preceding the group may be identifiable in the same way as the group. The groups may be colour coded.

Preferably the keys may be divided into two spaced regions, the keys of each region being preferably disposed substantially in rows angled relative to each other. The rows of each region may form a V-shape, the angle may be

adjustable, the consonant keys may be divided alphabetically between the regions and the vowel keys may be provided in one said region.

Preferably a plurality of further keys may be provided, the further keys being distinguishable from the alphabet keys by touch and/or sight. The finger engaging surfaces of one of the further keys and the alphabet keys may be convex and the other concave. The further keys may comprise function keys.

Preferably at least some of the alphabet keys are aligned in a rectangular grid.

At least one anchor key is preferably defined from amongst the alphabet keys, the anchor key being at a suggested position of rest of a typing finger of one hand of a user and wherein the anchor key is identifiable by touch. The anchor key may have a dimple or protrusion.

A preferred topological arrangement of alphabet keys is substantially as shown in Figure 1 or Figure 2 of the accompanying drawings.

The device may be a keyboard or a touch-sensitive screen, in the case of the latter, the keys are provided as images on the screen.

According to the invention in a second aspect there is provided an alphabet character input device having a plurality of alphabet keys and the plurality of further keys and wherein the alphabet keys are distinguishable from the further keys by sight or touch.

According to the invention in a third aspect there is provided an alphabet character input device having a plurality of alphabet keys wherein five of the alphabet keys are disposed at suggested positions of rest of the typing fingers of a hand of a user.

Preferably the spacing between the five keys is greater between the thumb key and adjacent key and/or between the little finger key and adjacent key than between the intervening keys and at least one of the thumb key and little finger key may be larger than the others of the five keys.

According to the invention in a fourth aspect there is provided an alphabet character input device having a plurality of alphabet keys, at least one of the alphabet keys being larger than the others.

BRIEF DESCRIPTION OF THE DRAWINGS

An embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which :

Figure 1 is a schematic plan view of a keyboard, being a first embodiment of the invention; and

Figure 2 is a schematic plan view of a screen of a palmtop-style organizer, being a second embodiment of the invention.

DETAILED DESCRIPTION OF THE PREFFERED EMBODIMENTS

With reference to Figure 1 a keyboard being a first embodiment of the invention is shown. The keyboard is arranged as two regions in a V-shape configuration to conform to the natural position of the hands in a typing position. The angle α between the regions is approximately 125 degrees. The angle of the V may be set to that angle or the keyboard may be provided with a hinge so that the angle may be altered depending on the user's preference. The left hand region generally designated 10 contains keys for the five vowels A E I O U and all the consonants from B to H. The right hand region generally designated 20 contains keys for the remaining consonants from J to Z. The consonants keys are divided into a plurality of alphabetically ordered groups 11, 12, 21, 22 and 23. The consonants groups 11, 12, 21, 22, 23 are arranged in separate lines, each group 11, 12, 21, 22, 23 being alphabetically separated from the next by a vowel. The vowels themselves are arranged in a further group 30 of keys 31 - 35 arranged in an arc. The keys of the vowel group 30 are arranged in alphabetical order A E I O U and are positioned so that the fingers of the left hand naturally fall on the vowel keys. To assist this, vowel keys A (key 31) and U (key 32) upon which the thumb and little finger would be placed are made larger and are spaced further from the remaining vowel keys 33 – 35. A similar arcuate group 36 to vowel group 30 is formed between frequently used consonant keys RST, space key 37 and return key 38. Like group 30, the space key 37 and return key 38 of group 36 are larger than the intervening consonant keys RST.

In order to assist visual identification of the consonant groups by the user, the keys of each group have a different colour which is shared by the vowel which precedes that group. For example vowel key A (31) and consonant keys BCD (group 11) may be coloured red. Vowel key E (33) and consonant keys FGH (group 12) may be coloured light blue. Vowel key I (34) and consonant keys JKLMN (group 21) may be coloured dark blue, vowel key O (35) and consonant keys PQRST (group 22) may be coloured grey and vowel key U (32) and consonant keys VWXYZ (group 23) may be coloured green. Alternatively, the keys may have a different texture, for example a pattern of protrusions as well or instead of the colour coding.

The arrangement of the consonant characters in alphabetical order coupled with the visual /tactile grouping of the groups of characters makes understanding of the keyboard layout intuitive. A user only needs to know the alphabet which he/she would learn by heart from an early age in order to remember the relative location of the keys. A user will thus find it easier to learn touch typing without having constantly to look down at the keyboard enabling the user to keep his/her eyes on the screen and sit erect, reducing head and shoulder strain.

The remaining keys of the keyboard can be disposed in any preferred form but preferably the function keys such as F1 – F12 are differentiated from the alphabet/numeral/symbol keys by differences in shape of the top finger engaging surface and in this embodiment such a difference is achieved by the top surface of the function keys being made concave while the rest of the keys are convex.

The keyboard is provided with a plurality of anchor keys, which anchor keys are disposed at a suggested position of rest of the middle finger of one hand of a user. In the present case, the anchor keys are the letters I and S and, for the numerical key pad 40, the number 5. These keys are provided with a dimple or protrusion 50, 51, 52 so that they are identifiable by touch.

All the alphabet keys of the keyboard are aligned in rows and columns rather than staggered like a conventional keyboard to enable the user to navigate orthogonally amongst the keys.

Keys for performing certain locking functions, such as caps lock 60, scroll lock 61 and num lock 62 have indicator lights 63, 64, 65 provided adjacent these keys for easy reference.

Preferably, also, the longitudinal cross section of the keys are contoured to conform to the reach of the fingers at a typical typing position and a detachable wrist rest may be attached to the bottom edge of the keyboard .

Most keyboards use a pair of flexible sheets which are brought together when a key is depressed and make an electrical contact between an electrical connection on one sheet and an electrical connection on the other, this electrical connection identifying the key depressed. Since in the described embodiment, the order of the keys has changed, for the keyboard to be interchangeable with an existing keyboard it is necessary to map the position of

the keys of the described embodiment to those of the conventional keyboard, This can be done for example physically by designing the pattern of electrical connections on each sheet so that the electrical connection made by the depression of each individual key corresponds to that of a conventional keyboard, by a hard wired circuit which takes the input from the described embodiment and provides the output expected from a conventional keyboard or by software provided in the computer to which the keyboard is connected.

A second embodiment of the invention is shown in Figure 2 which shows a screen of a palm computer, for example. The screen is touch sensitive with the arrangement of keys being shown on the screen. A key can be selected by touching the screen with the pen. In a similar way to the embodiment of Figure 1, the consonant keys are divided into a plurality of groups 100 – 104 each separated by a vowel A E I O U. The vowels are provided in a separate group 105, the arrangement being such that all the letters of the alphabet are disposed on five rows, each row commencing with a vowel and the intervening consonants following that vowel.

The embodiments described are not to be construed as limitative. For example, although the embodiment of Figure 2 shows a touch screen character input device, this may be a cursor-activated keyboard or a hard keyboard attached to the device. Furthermore, although the embodiment of Figure 1 shows a keyboard for use for the computer, this could equally be incorporated into a computer (such as a lap-top), wordprocessor or typewriter, with or without the V-shape.

CLAIMS

1. An alphabet character input device having a plurality of consonant and vowel keys wherein the consonant keys are divided into a plurality of alphabetically ordered groups, each group being alphabetically separated from the next by a vowel.
2. A device as claimed in claim 1 wherein the keys of each group are in a separate row.
3. A device as claimed in claim 1 or claim 2 wherein the vowel keys are grouped together.
4. A device as claimed in claim 3 wherein the vowel keys are in alphabetical order.
5. A device as claimed in claim 3 or claim 4 wherein the spacing between the vowel keys at at least one end of the group is greater than the spacing at the middle of the group.
6. A device as claimed in any one of claims 3 to 5 wherein at least one vowel key at one end of the group is larger than in the middle of the group.
7. A device as claimed in any one of the preceding claims wherein the vowel keys are disposed at a suggested position of rest of the typing fingers of one hand of a user.
8. A device as claimed in any one of the preceding claims wherein a space key, a return key and 3 consonant keys are disposed at a suggested position of rest of the typing fingers of one hand of a user.
9. A device as claimed in any one of the preceding claims wherein each consonant group is distinguishable from the others by sight or touch.

10. A device as claimed in claim 9 wherein the vowel preceding the group is identifiable in the same way as the group.

11. A device as claimed in claim 9 or claim 10 wherein the groups are colour coded

12. A device as claimed in any one of the preceding claims wherein the keys are divided into two spaced regions.

13. A device as claimed in claim 12 wherein the keys of each region are disposed substantially in rows and the rows are angled relative to each other.

14. A device as claimed in claim 13 wherein the rows of each region form a V-shape.

15. A device as claimed in claim 13 or claim 14 wherein the angle is adjustable.

16. A device as claimed in any one of claims 12 to 15 wherein the consonant keys are divided alphabetically between the regions.

17. A device as claimed in any one of claims 12 to 16 wherein the vowel keys are provided in one said region.

18. A device as claimed in any one of the preceding claims comprising a plurality of further keys, the further keys being distinguishable from the alphabet keys by touch and/or sight.

19. A device as claimed in claim 18 wherein the finger engaging surfaces of one of the further keys and the alphabet keys are convex and the other concave.

20. A device as claimed in claim 19 wherein the further keys comprise function keys.

21. A device as claimed in any one of the preceding claims wherein at least some of the alphabet keys are aligned in a rectangular grid.

22. A device as claimed in any one of the preceding claims wherein at least one anchor key is defined from amongst the alphabet keys, the anchor key being at a suggested position of rest of a typing finger of one hand of a user and wherein the anchor key is identifiable by touch.

23. A device as claimed in claim 22 wherein the anchor key is formed with a dimple or protrusion.

24. A device as claimed in any one of the preceding claims wherein the topological arrangement of alphabet keys is substantially as shown in Figure 1 of the accompanying drawings.

25. A device as claimed in any one of claims 1 to 23 wherein the topological arrangement of alphabet keys is substantially as shown in Figure 2 of the accompanying drawings.

26. A device as claimed in any one of the preceding claims wherein the device comprises a keyboard.

27. A device as claimed in any one of claims 1 to 25 wherein the device comprises a touch-sensitive screen, the keys being provided as images on the screen.

28. An alphabet character input device having a plurality of alphabet keys and the plurality of further keys and wherein the alphabet keys are distinguishable from the further keys by sight or touch.

29. A device as claimed in claim 28 wherein the finger engaging surface of one of the alphabet keys and further keys is convex and the other is concave.

30. An alphabet character input device having a plurality of alphabet keys wherein five of the alphabet keys are disposed at suggested positions of rest of the typing fingers of a hand of a user.

31. A device as claimed in claim 30 wherein the spacing between the five keys is greater between the thumb key and adjacent key and/or between the little finger key and adjacent key than between the intervening keys.

32. A device as claimed in claim 30 or claim 31 wherein at least one of the thumb key and little finger key is larger than the others of the five keys.

33. An alphabet character input device having a plurality of alphabet keys, at least one of the alphabet keys being larger than the others.