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**Datasheet for the decision
of 01 October 2009**

Case Number: T 0529/07 - 3.5.05

Application Number: 04017364.3

Publication Number: 1507189

IPC: G06F 1/16

Language of the proceedings: EN

Title of invention:

Staggered keyboard for a portable device

Applicant:

Research in Motion Limited

Headword:

Staggered keyboard/RESEARCH IN MOTION

Relevant legal provisions:

-

Relevant legal provisions (EPC 1973):

EPC Art. 56

Keyword:

"Inventive step - main and auxiliary requests (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0529/07 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 1 October 2009

Appellant: Research in Motion Limited
Waterloo, Ontario
N2L 3W8 (CA)

Representative: Mario Reinhold
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Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 16 June 2006
refusing European application No. 04017364.3
pursuant to Article 97(1) EPC 1973.

Composition of the Board:

Chairman: D. H. Rees
Members: P. Cretaine
P. Schmitz

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division dispatched 16 June 2006, refusing European patent application No. 04017364.3. The decision was based on the grounds that claim 1 of each of a main and an auxiliary requests did not involve an inventive step according to Article 56 EPC 1973 having regard to the disclosure of

D1: EP 0 712 144.

II. Notice of appeal was submitted on 25 August 2006 and the appeal fee was paid on the same day. It was requested that the decision to refuse be cancelled. The grant of a patent was requested on the basis of the sets of claims on which the appealed decision had been based:

- claims 1 to 11 filed on 05 April 2006 as a main request, or
 - claim 1 filed on 05 May 2006 and dependent claims 2 to 11 filed on 05 April 2006, as an auxiliary request.
- A precautionary request for oral proceedings was also made. The statement setting out the grounds of appeal was submitted on 26 October 2006.

III. In a communication accompanying a summons to oral proceedings to be held on 1 October 2009, the board gave a preliminary opinion that the subject-matter of claim 1 according to the main request did not involve an inventive step when starting from D1 as closest prior art. In addition the board raised a similar objection based on the following prior art document, cited in the description:

D0: US 6 278 442.

The board also gave a preliminary opinion that the subject-matter of claim 1 according to the auxiliary request did not involve an inventive step having regard to the disclosure of D1 combined with the following document, cited in examination:

D2: US 2003/0063070.

The board further gave its reasons why the appellant's arguments were not convincing.

- IV. In a letter of response to the summons submitted on 1 September 2009, the appellant filed four sets of amended claims according to a new main request and three new auxiliary requests, replacing all previous requests, together with arguments in support of inventive step of the four requests.
- V. Oral proceedings were held on 1 October 2009 in the course of which the appellant presented arguments in favour of an inventive step of the main request and the auxiliary requests, in particular in the light of a combination of the teachings of D0 and D1.
- VI. Independent claim 1 of the main request reads as follows

"A portable wireless communication device (10),
comprising:
a housing (12);

a generally rectangular display (16) mounted within the housing (12);

a speaker (18) and a microphone (20) mounted within the housing (12) for enabling wireless voice communication; and

a staggered QWERTY or QWERTZ or AZERTY or DVORAK keyboard (14) comprising: a plurality of keys (24) arranged into three rows of keys (14A, 14B, 14C), wherein each of the keys (24) is associated with a letter of the alphabet, and wherein each of the plurality of rows of keys (14A, 14B, 14C) includes a plurality of keys (24) and a plurality of labels representing the letter of the alphabet associated with each of the plurality of keys (24);

wherein each row (14A, 14B, 14C) consists of two sets of keys, in each row (14A, 14B, 14C) keys (24) of the first set being alternating with keys (24) of the second set;

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of keys (24) are arranged in a staggered pattern such that the key centers for the plurality of keys (24) in the row are arranged along first and second reference lines (26A, 26C), with key centers of keys (24) from the first set arranged along the first reference line (26A) and key centers of keys (24) from the second set arranged along the second reference line (26C) so that the keys (24) in each of the rows of keys (14A, 14B, 14C) are staggered along the first and second reference lines (26A, 26C), the first reference line (26A) being located above the second reference line (26C); and

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of labels representing the letters of the alphabet associated with each of the plurality

of keys (24) are all arranged along a third, common reference line (26B) being located between the first and second reference line (26A, 26C), wherein the plurality of keys (24) are grouped into super-keys (22), each row of keys (14A, 14B, 14C) comprising exactly two super-keys (22), namely a right super-key and a left super-key, each super-key (22) comprises a plurality of contiguously-spaced sub-keys (24), the sub-keys (24) of a super-key (22) being arranged so that there is negligible or no distance between adjacent sub-keys (24), and the distance between adjacent sub-keys (24) of a super-key (22) is smaller than the distance between the super-keys (22) of a row of keys (14A, 14B, 14C)."

VII. Independent claim 1 of the first auxiliary request reads as follows:

"A portable wireless communication device (10), comprising:
a housing (12);
a generally rectangular display (16) mounted within the housing (12);
a speaker (18) and a microphone (20) mounted within the housing (12) for enabling wireless voice communication;
and
a staggered QWERTY keyboard (14) comprising: a plurality of keys (24) arranged into three rows of keys (14A, 14B, 14C), wherein each of the keys (24) is associated with a letter of the alphabet, and wherein each of the plurality of rows of keys (14A, 14B, 14C) includes a plurality of keys (24) and a plurality of labels representing the letter of the alphabet associated with each of the plurality of keys (24);

wherein each row (14A, 14B, 14C) consists of two sets of keys, in each row (14A, 14B, 14C) keys (24) of the first set being alternating with keys (24) of the second set;

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of keys (24) are arranged in a staggered pattern such that the key centers for the plurality of keys (24) in the row are arranged along first and second reference lines (26A, 26C), with key centers of keys (24) from the first set arranged along the first reference line (26A) and key centers of keys (24) from the second set arranged along the second reference line (26C) so that the keys (24) in each of the rows of keys (14A, 14B, 14C) are staggered along the first and second reference lines (26A, 26C), the first reference line (26A) being located above the second reference line (26C); and

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of labels representing the letters of the alphabet associated with each of the plurality of keys (24) are all arranged along a third, common reference line (26B) being located between the first and second reference line (26A, 26C),

wherein the plurality of keys (24) are grouped into super-keys (22), each row of keys (14A, 14B, 14C) comprising exactly two super-keys (22), namely a right super-key and a left super-key,

the left super-key of the top row of the three rows comprises the keys with the letters Q, W, E, R, T from left to right,

the right super-key of the top row of the three rows comprises the keys with the letters Y, U, I, O, P from left to right,

the left super-key of the middle row of the three rows comprises the keys with the letters A, S, D, F, G from left to right,
the right super-key of the middle row of the three rows comprises the keys with the letters H, J, K, L from left to right,
the left super-key of the bottom row of the three rows comprises the keys with the letters Z, X, C, V from left to right,
the right super-key of the bottom row of the three rows comprises the keys with the letters B, N, M from left to right,
each super-key (22) comprises a plurality of contiguously-spaced sub-keys (24), the sub-keys (24) of a super-key (22) being arranged so that there is negligible or no distance between adjacent sub-keys (24),
and the distance between adjacent sub-keys (24) of a super-key (22) is smaller than the distance between the super-keys (22) of a row of keys (14A, 14B, 14C)."

VIII. Independent claim 1 of the second auxiliary request reads as follows:

"A portable handheld wireless communication device (10), comprising:
a housing (12);
a generally rectangular display (16) mounted within the housing (12);
a speaker (18) and a microphone (20) mounted within the housing (12) for enabling wireless voice communication;
and
a staggered QWERTY or QWERTZ or AZERTY or DVORAK keyboard (14) for enabling wireless data communication,

wherein the staggered keyboard (14) comprises: a plurality of keys (24) arranged into three rows of keys (14A, 14B, 14C), wherein each of the keys (24) is associated with a letter of the alphabet, and wherein each of the plurality of rows of keys (14A, 14B, 14C) includes a plurality of keys (24) and a plurality of labels representing the letter of the alphabet associated with each of the plurality of keys (24);

wherein each row (14A, 14B, 14C) consists of two sets of keys, in each row (14A, 14B, 14C) keys (24) of the first set being alternating with keys (24) of the second set;

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of keys (24) are arranged in a staggered pattern such that the key centers for the plurality of keys (24) in the row are arranged along first and second reference lines (26A, 26C), with key centers of keys (24) from the first set arranged along the first reference line (26A) and key centers of keys (24) from the second set arranged along the second reference line (26C) so that the keys (24) in each of the rows of keys (14A, 14B, 14C) are staggered along the first and second reference lines (26A, 26C), the first reference line (26A) being located above the second reference line (26C); and

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of labels representing the letters of the alphabet associated with each of the plurality of keys (24) are all arranged along a third, common reference line (26B) being located between the first and second reference line (26A, 26C),

wherein the plurality of keys (24) are grouped into super-keys (22), each row of keys (14A, 14B, 14C)

comprising exactly two super-keys (22), namely a right super-key and a left super-key, each super-key (22) comprises a plurality of contiguously-spaced sub-keys (24), the sub-keys (24) of a super-key (22) being arranged so that there is negligible or no distance between adjacent sub-keys (24), and the distance between adjacent sub-keys (24) of a super-key (22) is smaller than the distance between the super-keys (22) of a row of keys (14A, 14B, 14C), wherein the staggering of the keys (24) in a row (14A, 14B, 14C) is mirrored about a central vertical reference line bisecting the portable device (10) such that the key centers alternate between the first and second reference lines from key to key, except for the centrally located keys, which are arranged on the same horizontal reference line."

IX. Independent claim 1 of the third auxiliary request reads as follows:

"A portable wireless communication device (10), comprising:
a housing (12);
a generally rectangular display (16) mounted within the housing (12);
a speaker (18) and a microphone (20) mounted within the housing (12) for enabling wireless voice communication;
and
a staggered QWERTY keyboard (14) comprising: a plurality of keys (24) arranged into three rows of keys (14A, 14B, 14C), wherein each of the keys (24) is associated with a letter of the alphabet, and wherein each of the plurality of rows of keys (14A, 14B, 14C)

includes a plurality of keys (24) and a plurality of labels representing the letter of the alphabet associated with each of the plurality of keys (24); wherein each row (14A, 14B, 14C) consists of two sets of keys, in each row (14A, 14B, 14C) keys (24) of the first set being alternating with keys (24) of the second set;

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of keys (24) are arranged in a staggered pattern such that the key centers for the plurality of keys (24) in the row are arranged along first and second reference lines (26A, 26C), with key centers of keys (24) from the first set arranged along the first reference line (26A) and key centers of keys (24) from the second set arranged along the second reference line (26C) so that the keys (24) in each of the rows of keys (14A, 14B, 14C) are staggered along the first and second reference lines (26A, 26C), the first reference line (26A) being located above the second reference line (26C); and

wherein within each of the rows of keys (14A, 14B, 14C), the plurality of labels representing the letters of the alphabet associated with each of the plurality of keys (24) are all arranged along a third, common reference line (26B) being located between the first and second reference line (26A, 26C),

wherein the top row (14A) of the three rows comprises the keys associated with the letters Q, W, E, R, T, Y, U, I, O, P from left to right,

the middle row (14B) of the three rows comprises the keys associated with the letters A, S, D, F, G, H, J, K, L from left to right,

the bottom row (14C) of the three rows comprises the keys associated with the letters Z, X, C, V, B, N, M from left to right, a space bar key is arranged below the bottom row (14C), the plurality of keys (24) are grouped into seven super-keys (22), each super-key (22) comprises a plurality of contiguously-spaced sub-keys (24), the sub-keys (24) of a super-key (22) being arranged so that there is negligible or no distance between adjacent sub-keys (24), some of the seven super-keys (22) include keys from more than one of the three rows, a first super-key of the seven super-keys (22) comprises the keys associated with the letters R, T, a second super-key of the seven super-keys (22) comprises the keys associated with the letters Y, U, a third super-key of the seven super-keys (22) comprises the keys associated with the letters W, E, F, G, a fourth super-key of the seven super-keys (22) comprises the keys associated with the letters H, J, I, O, a fifth super-key of the seven super-keys (22) comprises the keys associated with the letters Q, S, D, C, V, a sixth super-key of the seven super-keys (22) comprises the keys associated with the letters B, N, K, L, P, and a seventh super-key of the seven super-keys (22) comprises the keys associated with the letters A, Z, X, M and further comprises the space bar key."

- X. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis

of the main request or any of the auxiliary requests 1 to 3 all filed with letter dated 1 September 2009.

XI. After deliberation the board announced its decision.

Reasons for the Decision

1. The appeal is admissible.
2. Closest prior art

D0 discloses a hand-held electronic device with a keyboard optimized for use with the thumbs. The single embodiment described in relation with the figures relates to a two-way pager. It is mentioned in dependent claims 24 and 48 that the device may be a cellular telephone.

D1 discloses a portable electronic device with a staggered keyboard. The described embodiment relates to a label printer having a vertically elongated shape like a portable telephone (column 1, lines 29-31 and 54-58).

Although the shape of the two-way pager described in D0 (see figure 2) makes it more adapted to be used as a "Blackberry" device of the appellant than as a wireless voice communication device, the board judges that D0 represents the closest prior art since it relates to a portable wireless communication device and, owing to the reference to a cellular telephone in dependent claim 24, may be used for voice communication, whereas D1 does not disclose any wireless communication

capability of the keyboard device. The board notes that the option of choosing D0 as the closest prior art was put forward in the communication accompanying the summons to oral proceedings (section 3.2.6).

3. Main request:

- 3.1 The differences between the subject-matter of claim 1 and the disclosure of D0 are the provision of a staggered keyboard with super-keys wherein:
- the keys are arranged in three rows of keys; and
 - the keys in each row are grouped in two super-keys, each super-key comprising a plurality of contiguously-spaced sub-keys, adjacent sub-keys of a super-key having negligible or no distance between them, the distance between adjacent sub-keys of a super-key being smaller than the distance between the super-keys of a row.

Figure 1 of the application illustrates such a keyboard device.

- 3.2 The staggering of keys allows a reduction of the horizontal size of the device and the arrangement of keys in super-keys provides a further reduction in size.

The appellant argued that a further technical effect of arranging the keys in super-keys is to maintain a good usability of the device when typing with two thumbs. However thumbs typing is not mentioned and there is no reference to one hand or two hands typing usability in the application. The application as filed addresses the technical problem of achieving size reduction while maintaining a familiar standard keyboard layout and

solves this problem by using, respectively, keys staggering and super-keys, and arrangement of the key labels on a row along a common reference line. A technical effect of super-keys in respect of thumbs typing is not disclosed in the application.

D0 describes that thumbs typing is facilitated by the symmetry of the keyboard and the orientation and shape of the keys, as illustrated in figure 2, but does not mention that the spacing of keys, in particular the use of super-keys as defined in the application, is of importance for thumbs typing.

The board is therefore not convinced that the arrangement of keys in super-keys in a staggered keyboard solves a technical problem with respect to thumbs typing. Nor does it judge that the skilled person would understand that there was such a technical problem solved by the application, even in the knowledge of D0.

- 3.3 The objective technical problem may thus be defined as how to reduce the horizontal size of the keyboard while maintaining usability of the keyboard, in particular for thumbs typing.

The question which immediately arises from D0 is what should be done to make the device illustrated on figure 2 into a cellular telephone, with a speaker and microphone placed at an appropriate distance apart. The skilled person would certainly try to make it longer and narrower.

D1 addresses exactly this problem (see column 1, lines 29-31 and 54-58). The skilled person would thus be motivated to combine the teaching of D1 in respect of a staggered keyboard with D0.

The appellant argued that the skilled person would not apply the teaching of D1 to D0 because D1 discusses a device that can be held in one hand while data input operations are performed with the other hand, whereas D0 disclosed a device to be used with two thumbs. The board disagrees; the skilled person would recognise immediately that the teaching of D1 in respect of a staggered keyboard would not be restricted to devices to be operated with one hand.

It was common ground in the written appeal procedure and during the oral proceedings that staggering of keys in rows is disclosed in D1 (see e.g. figure 1). When applying the teaching of D1 to the device of D0, the skilled person would not suppress the symmetry of the keyboard since it would be detrimental to the usability with thumbs typing. He would apply the staggering of keys separately to both sides of the keyboard. Reducing the distance between keys in a row of a keyboard half-side, thereby building two super-keys in a row, represents a normal design procedure for the skilled person desiring to further reduce the horizontal keyboard size while maintaining the keyboard symmetry.

As discussed above (section 3.2) the board does not accept the appellant's further arguments based on an alleged technical advantage arising from the use of super-keys in the specific context of thumbs typing.

Therefore the subject-matter of claim 1 lacks an inventive step over the disclosure of D0 combined with the teaching of D1.

4. First auxiliary request

With regard to the added features of claim 1 defining the allocation of letter labels to the keys in a standard QWERTY layout, the board considers that they are implicitly disclosed in D0 which discloses a three row QWERTY keyboard (see column 1, lines 38-45 and figure 2).

The appellant argued that these features combine with the super-keys to improve the usability with thumbs typing for a user aware of the conventional 10-finger typing system. The board sees no synergy between the QWERTY layout and the use of super-keys and since it does not accept the appellant's arguments based on the use of super-keys in the specific context of thumbs typing (see above, section 3.3), the subject-matter of claim 1 does not involve an inventive step, having regard to the disclosure of D0 and D1.

5. Second auxiliary request

Claim 1 adds to claim 1 of the main request the feature of a symmetrical staggering within a row, except for the centrally located keys.

The appellant' arguments are based on the keyboard described in D1, figure 2, which contains eleven keys per row and for which the combination of two super-keys

per row and mirrored staggering appears not to be possible due to the presence of a central key.

As mentioned above in section 2.3, the board considers that, starting from D0, the skilled person would try to keep the keyboard left-right symmetry while applying the key staggering. Since the keyboard illustrated in figure 2 of D0 contains five keys per half-row, it is obvious that the centrally located keys can be arranged on the same horizontal line to keep this symmetry.

Thus the subject-matter of claim 1 of this request lacks an inventive step over the disclosure of D0 combined with the teaching of D1.

6. Third auxiliary request

Claim 1 defines a device comprising a staggered keyboard according to figure 5, wherein keys of different rows are arranged in super-keys to provide a "V" shape arrangement.

The board has already rejected arguments that the use of super-keys in the context of thumbs typing is inventive. However the claims of the previous requests did not specify the "V" shape which follows from the specification of the letter keys in each super-key specified in claim 1 of the present request. It is therefore necessary to consider whether, in this specific case, there is an additional technical problem solved, and whether the skilled person would have recognised that fact. In fact, the board judges that the "V" shape does not achieve any relevant technical effect which could point to the presence of an

inventive step, but rather represents a mere design feature with no technical function. In particular, the board is not convinced by the appellant's argument that the orientation of the super-keys fits to the natural movement of the thumbs when holding the device with two hands, and thereby improves the usability of the keyboard when typing with both thumbs. Even if it is accepted that the "V" shape may fit the natural thumb movement when switching between letters belonging to the same super-key, it may well be inconvenient when switching between letters belonging to different super-keys.

Thus the subject-matter of claim 1 of this request also lacks an inventive step over the disclosure of D0 combined with the teaching of D1.

7. Since there is no allowable request, the appeal has to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

K. Götz

D. H. Rees

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