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Datasheet for the decision of 12 February 2010

Case Number: T 1058/08 - 3.5.03

Application Number: 05002037.9

Publication Number: 1562352

IPC: H04M 1/02

Language of the proceedings: EN

Title of invention:
Mobile phone with buffer

Applicant:
NEC CORPORATION

Opponent:
-

Headword:

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - no"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1058/08 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 12 February 2010

Appellant: NEC CORPORATION
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Tokyo (JP)

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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 27 November 2007 refusing European patent application No. 05002037.9 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: A. S. Clelland
Members: B. Noll
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division posted on 27 November 2007 to refuse European patent application No. 05002037.9 on the ground that each independent claim of a main and two auxiliary requests lacked an inventive step (Articles 52(1) and 56 EPC).

II. The applicant appealed this decision and requested that it be set aside and a patent be granted.

III. With the statement of grounds of appeal received on 7 April 2008 the appellant filed a new set of claims 1 to 16, corresponding to those of the second auxiliary request before the examining division.

IV. In a communication accompanying a summons to oral proceedings the board expressed its preliminary view on inventive step as regards the subject-matter claimed, referring to the following documents:

D1: US 2003/0228847 A1
D2: US 2002/0128053 A1

V. With a letter of 12 January 2010 the appellant submitted an amended set of claims 1 to 16 replacing the claims on file.

VI. Claim 1 reads as follows:

"A mobile communication terminal device equipped with a first casing (5) and a second casing (3), comprising:
a multi-axis hinge (6) rotatably coupling the

first and second casings having a first axis (6a) having a first direction and extending between the first and the second casings when the casings are opened, and a second axis (6b) having a second direction perpendicular to the first direction; and characterized by

buffer members (7, 8, 21 to 30) that are arranged between the first and second casings in a state in which the first and second casings are folded,

wherein the buffer members are positioned on the first or second casing on a first side in the vicinity of the multi-axis hinge with respect to the second direction and on the first or second casing on a second side opposite to the multi-axis hinge with respect to the second direction, and

each of the buffer members is arranged on a first rectangular main surface of the first casing or a second rectangular main surface of the second casing, said first and second main surfaces facing each other when the first and the second casings are folded, the buffer members being located at the four corners on the main surface in the folded state,

such that a clearance is formed between the first and the second casings in the folded state in a such a [sic] way that the first and second rectangular main surfaces are prevented from coming into contact with each other when a torque around the second axis (6b) is applied in the folded state."

VII. Oral proceedings before the board were held on 12 February 2010. It was requested that the decision under appeal be set aside and a patent granted on the basis of the set of claims filed on 12 January 2010.

VIII. At the end of the oral proceedings the board announced its decision.

Reasons for the decision

Claim 1 - inventive step (Article 56 EPC)

1. The invention concerns a foldable electronic device as described in paragraph [0003] of the published application which consists of two casings, namely a main body and a cover, attached to each other with a two-axis hinge. While the cover and the body pivot around the first axis in order for the device to be folded or unfolded, the cover may additionally turn around the second axis, perpendicular to the first axis. The purpose of this additional degree of freedom is to permit the user to have the display, which normally constitutes the inner surface of the cover, as an outer surface when the device is folded.

A foldable electronic device realized as a mobile telephone and having the above-mentioned features is disclosed in D1. Figures 3 and 4 of D1 show a perspective view of a multi-axis hinge extending between a cover 4 and a main body 3, i.e. first and second casings, of the foldable mobile telephone. The first axis of rotation is shown as a1, a2 and the second axis, for separately turning the cover, as b1, b2. The features of the preamble of claim 1 are thus known from D1.

The features of the characterizing portion of claim 1, namely buffer members having specific positions and

functions and arranged on the first or the second casings, are not known from D1. The device according to claim 1 is thus novel having regard to D1.

2. The board considers that, starting out from the D1 device, the objective technical problem to be solved is to avoid unintended contact between the casings at positions other than the hinge, which might lead to damage. This problem is essentially that stated at page 4 of the impugned decision.

3. D2 is concerned with the problem of avoiding damage to a foldable telephone caused by a mechanical shock which might occur when parts of the body and the cover make contact on opening or closing the telephone (cf. paragraphs [0009-0012]). As a solution to this problem D2 suggests at paragraph [0013] that a buffer member be installed on contact portions of the cover and the main body. More specifically, in the figure 3 embodiment the body 4 of the D2 telephone is provided with buffer members 16, 18 at points close to the hinge which serve to contact corresponding portions of the cover in the unfolded state. In further embodiments, buffer members 40, 42 (figure 7) and 58, 60 (figure 8) are arranged on the body and the cover at positions remote from the hinge so as to contact one another in the folded state. Although D2 is concerned with the problem of shock in a foldable telephone having a single-axis hinge, the board considers that the skilled person would understand from paragraphs [0009-0012] that this problem is not limited to telephones having a single-axis hinge but applies to any telephone in which different parts can make contact in consequence of relative motion. Thus, the skilled person faced with

the problem stated at point 2 above would be led by D2 to provide buffer members at all locations at which the casings of a two-axis telephone as in D1 might have mutual contact. The skilled person could be expected to determine these locations by trial and error, i.e. by seeing which movements between the casings give rise to contact. Following such trial and error the skilled person could be expected to observe that the corners of the cover are at risk of contact with the surface of the body, and would thus be led to place buffer members in the vicinity of the corners on the surface of the cover or the body. Thus, the skilled person, having started out from the telephone of D1, would arrive at the foldable terminal device according to claim 1 without the exercise of inventive skill.

4. The appellant's arguments can be summarized as follows:

The board formulated the technical problem in an unjustifiably broad manner. According to T 1019/99 (point 3.3 of the reasons) the technical problem had to be formulated as specifically as possible based on the technical effect of those features distinguishing the claim from the prior art; considering the features distinguishing claim 1 from D1, the technical problem should therefore be formulated more narrowly as being "to prevent an accidental rotation of the one casing around a hinge extending in the longitudinal direction of the mobile terminal" in the folded state. Moreover, there would be no risk of damaging the D1 telephone by a torque applied to the cover in the folded state since the D1 telephone includes a locking mechanism which secures the rotatable cover when in the 180° position with a prescribed holding force which would prevent the

cover from rotation about the second axis in the folded state. Moreover, D2 disclosed the use of buffer members only for preventing a shock caused by a relatively fast folding or unfolding operation in which the casings might clash. There was no suggestion that buffer members be provided for avoiding unintended contact between the casings when the telephone is already in the folded state.

5. The board is not convinced by these arguments.

Regarding the formulation of the technical problem, it is stated in the application at paragraph [0008] that "the buffer members […] prevent the two casings from coming into contact with each other". From this passage and the subsequent passage "Due to the buffer members 21 and 22, the region of the first casing 5 in the vicinity of the two-axis hinge 6 does not easily move or rotate" it follows that preventing rotation of the cover in the folded state is seen in the application as an additional problem but that the primary problem still is to avoid contact between the cover and the body. For this reason the board considers the definition of the technical problem at point 2 above as appropriate, having regard to the technical effect ascribed to the buffer members in paragraph [0008] of the description. Moreover, this problem is inherent in the D1 telephone: the locking mechanism in D1 may keep the cover at the 180° position of the second axis "with a prescribed holding power" but there is no suggestion that this would be sufficient to prevent undesired contact between the cover and the body. Regarding this primary problem of avoiding contact between the casings it is irrelevant whether the motion leading to contact

between the casings is relatively fast as in D2 or relatively slow as could be expected when the cover of the D1 telephone is rotated about the second axis in the folded state. For this reason the skilled person would be led by the teaching of D2 to protect the contact portions of the housing of the D1 telephone by means of buffer members, irrespective of the speed of the motion leading to the contact.

6. Accordingly, the board concludes that the device as claimed in claim 1 does not involve an inventive step (Article 56 EPC).

7. Since the subject-matter of claim 1 of the sole request fails to meet the requirement of inventive step the appeal cannot be allowed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

U. Bultmann A. S. Clelland