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Case Number: T 1612/09 - 3.5.03

Application Number: 06024224.5

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Language of the proceedings: EN

Title of invention:
Case for a hand held device

Applicant:
LG Electronics Inc.

Opponent:
-

Headword:
Transparent cover/LG

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Inventive step - no (all requests)"

Decisions cited:
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Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1612/09 **-** 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 26 September 2011

Appellant: LG Electronics Inc.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 23 March 2009 refusing European patent application No. 06024224.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: A. S. Clelland
Members: B. Noll
R. Moufang

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse European patent application No. 06024224.5. The ground for refusal given in the impugned decision was that the subject-matter according to independent claim 1 of a main request and of two auxiliary requests, all as filed on 6 February 2009, lacked an inventive step. Inter alia, the following documents were mentioned in the impugned decision:

D5: EP 1603308 A1
D8: US 2004/004602 A1
D10: DE 19934707 C1

II. The applicant (appellant) lodged an appeal against the decision. In the statement of grounds it was requested that the impugned decision be set aside and that a patent be granted on the basis of claims according to "Auxiliary Request 2" as filed on 6 February 2009. Oral proceedings were conditionally requested.

III. In a communication accompanying a summons to oral proceedings the board gave a preliminary opinion on inventive step (Article 56 EPC).

IV. Together with a response to the board's communication the appellant filed further sets of claims according to Auxiliary Requests 3-7 on 24 August 2011.

V. Oral proceedings before the Board took place on 26 September 2011. It was requested that the decision under appeal be set aside and a patent be granted on the basis of "Auxiliary Request 2" as filed on

6 February 2009, or, in the alternative, on the basis of one of the "Auxiliary Requests" 3, 4, 5, 6 or 7, all as filed on 24 August 2011.

VI. Claim 1 of the main request, i.e. "Auxiliary Request 2", reads as follows:

"A mobile device (10), comprising:
- a display (12);
- a cover (32) formed from an optically transmissive material and covering the display (12);
- an opaque material formed over a portion of said cover (32), arranged to define, integrated in the cover (32):
-- a display portion (40) which is optically transmissive and occupies an area proximate to an end of the cover (32); and
-- an input portion occupying another area proximate to another end of the cover (32), and comprising a plurality of optically transmissive input regions (42), each defined by portions of said opaque material;
characterized by
- a frame (34) sized to receive said cover (32);
- a first housing (31) structured to couple with said frame (34), wherein said cover (32), said frame (34), and said first housing (31) are structured to define an enclosure sized to contain electrical components for said mobile device (10);
- a capacitance touch pad (14) adapted to generate signal(s) when at least one of the input regions (42) is touched, wherein
the capacitance touch pad (14)is positioned below said cover (32), and wherein the cover (32) completely covers the capacitance touchpad (14), comprises a flat

surface facing the capacitance touch pad (14), does not comprise any apertures at the input portion and is made of a rigid material."

Claim 1 of "Auxiliary Request 3" differs from claim 1 of "Auxiliary Request 2" in that the last feature reads "a capacitance touch pad (14) adapted to generate signal(s) when at least one of the input regions (42) is touched, wherein the capacitance touch pad (14) is positioned below said cover (32) and the cover (32) completely covers the capacitance touchpad (14),

wherein the frame (34) comprises:

a mounting surface (52) recessed from one surface of the frame (34) such that the cover (32) is disposed thereon; and

a protrusion protruded from the perimeter of the mounting surface (52) and configured to accommodate the cover (32) therein."

Claim 1 of "Auxiliary Request 4" differs from claim 1 of "Auxiliary Request 3" in that the last feature reads

"wherein the frame (34) comprises:

a mounting surface (52) extending toward the inside of the frame (34) and defining a space for accommodating the cover (32) therein; and

a protrusion protruded from the perimeter of the mounting surface (52), and wherein the cover is accommodated in the frame (34), disposed on the mounting surface and contactable with an inner surface of the protrusion."

Claim 1 of "Auxiliary Request 5" differs from of claim 1 of "Auxiliary Request 3" in that the display is

"configured to output visual information", and in that the following features are added:
- "a speaker (51) configured to output audio sound",
- the cover covers the display "and the speaker (51)",
- the opaque material formed over a portion of the cover is arranged to further define, integrated in the cover "a first speaker aperture (44) formed over the speaker such that the audio sound is released to the outside of the mobile device (10)", and
- the frame additionally comprises "a second speaker aperture (50) formed in the mounting surface (52) and disposed between the speaker (51) and the first speaker aperture (44) so as to guide the audio sound".

Claim 1 of "Auxiliary Request 6" differs from claim 1 of "Auxiliary Request 2" in that the last feature reads

"a capacitance touch pad (14) adapted to generate signal(s) when at least one of the input regions (42) is touched, wherein the capacitance touch pad (14) is positioned below said cover (32) and the cover (32) completely covers the capacitance touchpad (14),

wherein said touch pad (14) comprises one or more light guides (15) associated with each of said plurality of optically transmissive input regions (42);

at least one light source (16) positioned relative to a bottom side of said touch pad (14), each of said at least one light source (16) being associated with one or more of said plurality of light guides (15) to provide light to said plurality of optically transmissive input regions(42),

wherein the touch pad (14) is shaped to define an aperture which forms an individual light guide (15)."

Claim 1 of "Auxiliary Request 7" adds to the last feature of claim 1 of "Auxiliary Request 6" that the individual light guide is "associated with an individual input region (42) of the cover (32)".

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

Reasons for the decision

1. *The technical problem*

The focus of the invention as claimed shifted in the course of the procedure. The problem identified in the application as filed (paragraph [0004] of the published application) specifically related to the manufacture of the housing assembly for a mobile device, the manufacture and assembling process being said to be complicated because the display window and an auxiliary keypad are separate components.

In the course of the appeal proceedings the appellant defined the general problem addressed by the invention as claimed in each of the requests on file as being to render the structure of the mobile device more flat, which problem is substantially different from the original problem and will be discussed in detail below.

2. *Claim 1 of "Auxiliary Request 2" (main request) - inventive step (Article 56 EPC)*

2.1 It is common ground that D10 represents the single most relevant prior art document. It discloses a mobile

device including a housing assembly, a display window and a key pad (column 1, lines 8-18) and, implicitly, a bottom part. The cover is fabricated from transparent plastics material and overlaid by a transparent plastics film FO which defines a transparent display window region B1. The film is opaque in further regions which define input portions $T_{1\ldots n}$ structured as graphics symbols each corresponding to an associated key (column 3, lines 36-62). The cover in D10 is fabricated by means of injection moulding (cf. the abstract) which in the context is understood by the board as implying that the cover material is made of a rigid material.

2.2 The claimed device differs from the D10 device in three aspects:

(a) the housing assembly is defined as being constructed of three parts, i.e. the cover, the frame and the "first housing",

(b) the keypad is said to be a capacitance touch pad and

(c) the cover comprises a flat surface facing the capacitance touch pad and does not comprise any apertures at the input portion.

2.3 The appellant argued that features (a) to (c) as identified above served, in combination, to ensure that the device has a flat structure and a small thickness. It was argued that arranging for the surface of the cover facing the capacitive touch pad to be flat contributed to reducing the overall thickness. Moreover, forming the housing assembly from three pieces including a frame further reduced the thickness. The appellant argued that in the absence of a frame extra tolerances would have to be added to prevent the cover

from damaging the circuitry, thus increasing the thickness of the device.

The board does not accept the appellant's assertion that the invention aims at reducing the thickness of the housing assembly. There is no indication in the application as filed that the thickness of the housing assembly is of importance. Nor does it appear to the board that having the cover flat towards the touch pad, or assembling the housing from three parts including a frame, will have any influence on the thickness of the housing assembly. The appellant was not able to convince the board that the provision of a frame enabled the thickness to be reduced with respect to a housing assembly having only two parts. The application as filed moreover discloses a housing assembly consisting of only two parts (figure 6) as a second embodiment of the originally claimed invention, and there is no indication in the application as filed that the first embodiment has advantages over the second embodiment as concerns the thickness of the housing assembly. The board therefore concludes that there is no specific technical problem to be solved by the invention, merely the juxtaposition of two separate partial problems, on the one hand providing a housing for a mobile device which can be conveniently assembled and which includes a cover which is easy to manufacture, and on the other hand providing a convenient input key pad for the mobile device.

2.4 The device as claimed in claim 1 lacks an inventive step (Article 56 EPC) for the following reasons:

Regarding the characterizing feature (a) identified above, a housing assembly assembled from a cover, a frame and a first, bottom housing is merely one of many constructions known to the skilled person from the prior art and is explicitly shown in D5, see figures 1A, 1B and the exploded views in figures 2 and 3. It would be obvious to the skilled person, starting out from the device of D10, that he or she could equally well assemble the housing assembly from three parts, i.e. a cover, a frame and a bottom housing, as disclosed in D5.

As regards feature (b), it is stated in the application (cf. paragraph [0051]) that "[t]ouch pad 14 may be implemented using conventional touch pad technologies" and "[s]uitable touch pads include, for example, pressure-sensitive touch pads, capacitance touch pads, and the like". Thus, implementing the user input facility as a capacitive touch pad is seen in the application itself as a matter of ordinary workshop practice for the skilled person which does not require inventive skill.

Finally, the cover having a flat surface facing the capacitance touch pad (feature (c)) does not appear to fulfil any technical function. No technical effect is associated with this feature in the description. Thus, designing the cover as comprising a flat surface facing the capacitance touch pad is no more than a matter of non-inventive choice for the skilled person, and additionally specifying that no apertures are provided at the input portion does not add to an inventive step since apertures are superfluous when the user input facility is a touch pad. Thus, feature (c) does not contribute to an inventive step.

2.5 The board therefore concludes that that the skilled person, starting out from D10 as the single most relevant prior art document and having regard to D5 and common general knowledge would arrive at the device as claimed in claim 1 without the exercise of inventive skill (Article 56 EPC).

3. *Claim 1 of "Auxiliary Request 3" and "Auxiliary Request 4" - inventive step (Article 56 EPC)*

The features added in claim 1 of "Auxiliary Request 3" further specify structural details of the frame. Claim 1 of "Auxiliary Request 4" uses slightly different wording for the added feature and is interpreted by the board as being directed to essentially the same subject-matter.

The appellant argued in its letter as filed on 24 August 2011 (cf. page 7, second paragraph) that by including the additional feature the mobile device would have "both a seamless outer structure, but [be] optimally flat".

Whilst the mounting surface is described at paragraph [0049] of the description, the only basis in the application for the frame having a protrusion is the exploded view in figure 3 and the cross-sectional view in figure 5.

Figure 5 is however understood by the board as showing that the cover extends above the frame. The board is therefore not convinced that such a housing assembly has a seamless outer structure and is optimally flat as

no such effect can be inferred from the application documents. Rather, providing a mounting surface for the cover and a protrusion at the edge of the frame on which the cover sits is a matter of ordinary workshop practice; such a structure is apparent from figure 2 of D5. Specifying a frame as having these features does not therefore contribute to an inventive step (Article 56 EPC).

4. *Claim 1 of "Auxiliary Request 5" - inventive step (Article 56 EPC)*

Claim 1 of "Auxiliary Request 5" in essence adds to claim 1 of "Auxiliary Request 3" a speaker and corresponding apertures in the frame and the cover for sound produced by the speaker. These features are matters of ordinary workshop practice and can be seen in figure 3 of D5, which shows a cavity 222 with an aperture towards the surface on which the cover of the device is mounted, as well as in the figure of D10.

The board does not accept the appellant's arguments that the additional features concerning the speaker and the apertures contribute to rendering the device as slim as possible, in particular as the application documents do not suggest this.

For this reason and the reasons set out above with respect to the superior requests, claim 1 according to "Auxiliary Request 5" lacks an inventive step (Article 56 EPC).

5. *Claim 1 of "Auxiliary Request 6" and "Auxiliary Request 7" - inventive step (Article 56 EPC)*

The features added in claim 1 of "Auxiliary Request 6" with respect to claim 1 of the main request set out the characteristics of the touch pad; the further feature added in claim 1 of "Auxiliary request 7" is understood by the board as a clarification of the meaning of the "individual light guide" which does not change the scope of the claim.

Although questions of clarity arise as regards the purpose of the light guides and their relation to the optically transparent input regions at the cover, the board is in a position to interpret the wording in the light of the description and assess the contribution of the feature as to inventive step.

The touch pad as set out in the additional features in claim 1 addresses the further sub-problem of having an appealing appearance of the mobile device at the input region. Such a touch pad is known in the art; D8 describes a touch pad having a light guide in the form of a light-guiding plate at the bottom side of the touch pad assembly (10 in figure 3), one or more light sources (LEDs 14) at the light-guiding plate and a plurality of numbers and symbols printed onto the light-guiding plate such that the plate forms a light guide for each number or symbol.

Therefore, in addition to the reasons given for the superior requests, the skilled person, faced with the further sub-problem indicated above, would have provided a touch pad as disclosed in D8 in a known

mobile device as described above. Therefore, the device claimed in claim 1 of "Auxiliary Request 6" lacks an inventive step (Article 56 EPC).

Since claim 1 of "Auxiliary Request 7" adds nothing of substance to claim 1 of "Auxiliary Request 6", the device claimed in claim 1 of "Auxiliary Request 7" lacks an inventive step for the same reasons.

6. In conclusion, the provision in a mobile device of a cover formed from an optically transmissive material which is partially opaque to define display and input portions is known from D10. The additional features relating to the housing assembly being composed by a cover, a frame and a bottom housing, the details as to how the cover is mounted onto the frame and the details of the capacitive touch pad each relate to a separate partial problem the solution to which is known from the cited prior art. Nor is any synergistic effect apparent which could justify an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar | The Chairman

G. Rauh | A. S. Clelland