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Case Number: T 0883/15 - 3.5.05

Application Number: 10804122.9

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Title of invention:
Input apparatus and control method of input apparatus

Applicant:
Kyocera Corporation

Headword:
Tactile sensations/KYOCERA

Relevant legal provisions:
EPC Art. 54, 111(1)

Keyword:
Novelty - main request (yes)
Remittal to the first instance for further prosecution - (yes)

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Case Number: T 0883/15 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 28 May 2018

Appellant: (Applicant)	Kyocera Corporation 6, Takedatobadono-cho Fushimi-ku Kyoto-shi Kyoto 612-8501 (JP)
Representative:	Schwabe - Sandmair - Marx Patentanwälte Rechtsanwalt Partnerschaft mbB Joseph-Wild-Straße 20 81829 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 5 January 2015 refusing European patent application No. 10804122.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	K. Bengi-Akyuerek
	D. Prietzel-Funk

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse the present European patent application on the sole ground of lack of novelty (Article 54 EPC) with respect to the claims of a main request and the first to third auxiliary requests, having regard to the disclosure of

D1: US-A-2007/0146334 or
D2: JP-A-2005-332063.

II. With the statement setting out the grounds of appeal dated 13 March 2015, the appellant filed an amended set of claims according to a main request. It requested that the examining division's decision be set aside and that a patent be granted on the basis of the claims of that main request or, as first and second auxiliary requests, the claims of the main request and third auxiliary request underlying the appealed decision.

III. In a communication under Rule 100(2) EPC, the board gave its preliminary opinion on the appeal. In particular, it indicated that the subject-matter of the independent claims of the present main request seemed to be novel over D1 and D2 (Article 54 EPC) and that it intended to remit the case to the examining division for further prosecution on the basis of the claims of that main request.

IV. By a letter of reply dated 16 May 2018, the appellant requested, as a main request, that the decision under appeal be set aside and that the case be remitted to the examining division for further prosecution on the basis of the claims filed on 13 March 2015. As an auxiliary request, it requested oral proceedings and

indicated that the above requests replaced all other requests on file. Moreover, it made some comments on the board's novelty analysis as regards document D1.

V. **Claim 1** of the present claim set reads as follows:

"An input apparatus comprising:
a touch sensor (11) for receiving an input;
a load detection unit (12) for detecting a pressure load on a touch face of the touch sensor (11);
a tactile sensation providing unit (13) for vibrating the touch face; and
a control unit (15) for controlling drive of the tactile sensation providing unit (13) such that a first tactile sensation is provided to a pressing object which is pressing the touch face, when the pressure load detected by the load detection unit (12) satisfies a first standard load for providing a tactile sensation, characterized in that
the control unit (15) controls drive of the tactile sensation providing unit (13) such that a second tactile sensation is provided to the pressing object, when the pressure load detected by the load detection unit (12) is [sic] releasing falls to a second standard load lower than the first standard load after the first tactile sensation is provided in pressing."

The further independent method **claim 4** reads as follows:

"A control method of an input apparatus comprising a touch sensor (11) for receiving an input, a load detection unit (12) for detecting a pressure load on a touch face of the touch sensor, a tactile sensation providing unit (13) for vibrating the touch face, and a control unit (15) for performing the control method,

the control method comprising:

controlling drive of the tactile sensation providing unit (13) such that a first tactile sensation is provided to a pressing object which is pressing the touch face, when the pressure load detected by the load detection unit (12) satisfies a first standard load for providing a tactile sensation, characterized by

then controlling drive of the tactile sensation providing unit (13) such that a second tactile sensation is provided to the pressing object, when the pressure load detected by the load detection unit (12) in releasing falls to a second standard load lower than the first standard load after the first tactile sensation is provided in pressing."

Reasons for the Decision

1. *Present invention*

The present invention is concerned with a feedback method ("tactile/pressure sensation"; "click sensation") for a touch-input device. This feedback method is based on generating a "click sensation" and a "release sensation", depending on the pressure load exerted on the touch surface with thresholds ("first standard" for pressing; "second standard" for releasing) and detected by the touch sensor. The application describes two embodiments, a first embodiment relating to the general feedback method (see paragraphs [0045] to [0060] and Figs. 5 to 9 of the application as filed) and a second embodiment relating to the application of the described feedback method to a mobile terminal (see paragraphs [0061] to [0067] and Figs. 10 and 11 as filed).

The subject-matter claimed refers to the particular case that the threshold ("second standard load") associated with the "releasing" operation is set to a lower value than the threshold ("first standard load") associated with the "pressing" operation (see Fig. 9).

2. *Novelty (Article 54 EPC)*

2.1 Independent method claim 4 of the present claim set now comprises the following limiting features, as labelled by the board (amendments to claim 4 of the main request underlying the appealed decision underlined by the board):

A control method of an

A) input apparatus comprising a touch sensor for receiving an input, a load detection unit for detecting a pressure load on a touch face of the touch sensor, a tactile sensation providing unit for vibrating the touch face, and a control unit for performing the control method, the control method comprising the steps of:

B) controlling [a] drive of the tactile sensation providing unit such that a first tactile sensation is provided to a pressing object which in pressing the touch face, when the pressure load detected by the load detection unit satisfies a first standard load for providing a tactile sensation;

C) then controlling [the] drive of the tactile sensation providing unit such that a second tactile sensation is provided to the pressing object, when the pressure load detected by the load detection unit <u>in releasing</u> falls to a second standard load lower than the first standard load <u>after the first tactile sensation is provided in pressing</u>.

The subject-matter of independent apparatus claim 1 corresponds to that of claim 4 (see point V above).

2.2 The examining division held that the independent claims then on file lacked novelty over document **D1** or **D2** (cf. appealed decision, Reasons 1 to 11). The board, however, holds that the subject-matter of the present independent claims is novel over D1 or D2, for the reasons set out below.

2.3 *Document D1*

2.3.1 As to feature A), the appellant argued that D1 did not disclose a load detection unit detecting a pressure load, since the detected binary data in D1 did not correspond to a pressure load exerted on the touch sensor.

The board is not convinced by this argument. In fact, at least Figures 5, 6, 9 and 10 of D1 clearly demonstrate that the load ("detected data value") exerted during the pressing operation ("panel press period") is *continuously* detected over time (see also paragraph [0065], last two sentences: *"As the front surface of the panel is continuously pressed, the resistance value gradually increases. When the front surface is pressed for a predetermined time period, the voltage value becomes saturated and constant"* or paragraph [0081], second sentence: *"When the front surface of the panel of the touch panel section 2 is continuously pressed, the detected data value gradually increases"* as well as paragraphs [0085], [0105] and [0118]). Thus, the board concludes that D1 indeed teaches the detection of a pressure load exerted on the touch sensor.

The appellant's argument that, according to the above-cited passages of D1, the output value was duration-dependent rather than pressure-dependent (see appellant's letter of reply dated 16 May 2018) does not convince the board either, since the curves in Figs. 5, 6, 9 and 10 up to the corresponding saturation points ("voltage value becomes stable") clearly demonstrate that the amplitude of the "detected data value" on the y-axis does not change linearly (see the irregularities of the curves) with the duration of the pressing operation on the x-axis, thereby further evidencing that the detected data value must depend on the pressing force (see also D1, paragraph [0067]: *"The sensor section 101 detects whether the front surface of the panel is being pressed with a voltage value ... The voltage value is ... detected as data value ..."*, thus implying that there is indeed a load detection unit for detecting pressure load data on a touch sensor).

2.3.2 As to features B) and C), the appellant argued that D1 did not disclose two standard loads (i.e. thresholds) for triggering two tactile sensations.

The board holds that at least Figures 5, 6, 9 and 10 of D1 palpably show that a first tactile sensation ("click sense") is generated when the pressure load ("detected data value") satisfies a first standard load, i.e. a point ("pressing operation is confirmed") at which the detected data value is considered to be stable. Moreover, paragraph [0139] teaches that, when the user releases his finger from the panel, he feels a click sense and a stroke sense, i.e. that the order of sensations generated is simply reverted. That in turn means that a second tactile sensation ("stroke sense") is generated when the pressure load ("detected data value") satisfies the same standard load, i.e. the

point ("pressing operation is confirmed") at which the detected data value is considered to be stable.

2.3.3 However, the board agrees with the appellant that D1 fails to disclose by explicit statement or unambiguous implication that the standard load (i.e. threshold) associated with the user's releasing operation is lower than the first standard load associated with the user's pressing operation.

2.3.4 Consequently, D1 does not anticipate feature C) of present claim 1.

2.4 *Document D2*

2.4.1 As to feature A), the appellant submitted that D2 did not provide tactile feedback related to a user's *single* touch action made up of a "pressing" and "releasing" operation. The board agrees that paragraphs [0055] and [0153] together with Figure 24 as referred to in the appealed decision, taken alone, do not anticipate a user's single action made up of a "pressing" and "releasing" operation.

However, it is apparent to the board that D2 in fact also teaches that two distinct tactile sensations ("tactile sense A" with "vibration pattern Pa" and "tactile sense B" with "vibration pattern Pb") are provided as tactile feedback, based on a standard load ("threshold Fth"). On the one hand, those tactile sensations are related to the "pressing" operation of a user's single touch action (see online translation from the Japanese Patent Office of D2, paragraph [0065], emphasis added: "*..., in the button icon 29a etc., when pushing it in, the tactile sense A is given, and when detaching it, it is premised on the case where the*

tactile sense B is given." and paragraph [0087]: *"... CPU32 compares ... pressure F with the depression decision threshold Fth, and it is distinguished whether ... F>Fth become. When these relations to F>Fth become, it ... starts the tactile sense A ..."*, in conjunction with Fig. 7A).

On the other hand, the sensations are related to the "releasing" operation of a user's single touch action (see e.g. paragraph [0067], emphasis added: *"Second vibration pattern Pb shown in Fig. 7B is a waveform which gives the tactile sense B. The driving condition b of the tactile sense B is a time of the button icon 29a being released after the button icon 29a etc. were pushed ... If an input detecting face is vibrated based on such a vibration pattern, the tactile sense of a cyber-switch etc. can be acquired"*; paragraph [0089]: *"... CPU32 compares ... pressure F with the depression decision threshold Fth, and distinguishes whether these relations are F<Fth. When these relations to F<Fth become, the tactile sense B is started ..."*, in conjunction with Fig. 7B).

But, similar to D1, the board considers that D2 likewise fails to directly and unambiguously disclose that the standard load associated with the user's releasing operation is lower than the standard load associated with the user's pressing operation. Rather, the tactile sensations relating to the "pressing" and "releasing" operations evidently rely on one and the same threshold, namely "threshold Fth" according to D2. Paragraph [0055] of D2, cited in the decision under appeal, does not allow a different conclusion in that respect (*"CPU32 starts the tactile sense A, when the input detecting means 45 detects the input detection information D2 exceeding the depression decision*

threshold Fth. Then, when the input detection information D2 which is less than the depression decision threshold Fth is detected, the actuator driving circuit 37 is controlled to start the tactile sense B ...").

2.4.2 Hence, D2 likewise does not anticipate feature C) of present claim 1.

2.5 In view of the above, the present independent claims are considered to meet the requirement of Article 54 EPC, having regard to D1 or D2.

3. *Remittal of the case for further prosecution*

Given that lack of novelty (Article 54 EPC) was the sole ground for refusal according to the decision under appeal, the question of inventive step as regards the present independent claims (in particular the determination of the closest prior art and the technical effect credibly achieved by the above-identified distinguishing feature) was neither discussed nor decided in the appealed decision. However, the board does not consider it appropriate to take a preliminary view or to pass final judgment on the issue of inventive step for the first time in these appeal proceedings.

Therefore, in accordance with the appellant's request, the board has decided to set the decision under appeal aside and to exercise its discretion to remit the case to the examining division for further prosecution under Article 111(1) EPC, on the basis of claims 1 to 6 submitted (as "main request") with the statement setting out the grounds of appeal on 13 March 2015.

4. *Request for oral proceedings (auxiliary request)*

Since the board accedes to the appellant's main request, there has been no need to appoint oral proceedings which were only requested on an auxiliary basis (see point IV above).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution.

The Registrar: The Chair:

K. Götz-Wein A. Ritzka

Decision electronically authenticated