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Datasheet for the decision of 3 March 2023

Case Number: T 1887/20 - 3.5.05

Application Number: 09831684.7

Publication Number: 2357546

IPC: G06F3/041

Language of the proceedings: EN

Title of invention:
INPUT DEVICE

Applicant:
Kyocera Corporation

Headword:
Input device with load detection and vibration units / Kyocera

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
Amendments - added subject-matter (yes)
Inventive step - auxiliary request (yes)
Remittal to the department of first instance - (yes)

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Case Number: T 1887/20 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 3 March 2023

Appellant: (Applicant)	Kyocera Corporation 6, Takedatobadono-cho Fushimi-ku Kyoto-shi Kyoto 612-8501 (JP)
Representative:	SSM Sandmair 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 29 May 2020 refusing European patent application No. 09831684.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	P. Tabery
	K. Kerber-Zubrzycka

Summary of Facts and Submissions

I. The appeal is directed against the examining division's decision to refuse the European patent application.

II. The examining division decided that the application - according to a main request, a 1st auxiliary request and a 2nd auxiliary request - did not meet the requirements of Article 56 EPC and that the 1st auxiliary request did additionally not fulfil the requirements of Articles 84 and 123(2) EPC.

III. The documents referred to by the examining division included:

D1 US 2007/236450 A1

D2 EP 1 956 466 A1

D3 M. Biet et al., "A Piezoelectric Tactile Display Using Travelling Lamb Wave", Proceedings of EUROHAPTICS, XP002438180, 5 July 2006, 567-570

D4 T. Watanabe et al., "A method for controlling tactile sensation of surface roughness using ultrasonic vibration", Proceedings of the international conference on robotics and automation, Nagoya, Japan, XP000657310, ISBN: 978-0-7803-1966-0, 21-27 May 1995, 1134-1139

D5 M. Takasaki et al., "Control parameters for an active type SAW tactile display", Proceedings of the international conference on intelligent robots and systems (IROS), vol. 4, XP010766321, ISBN: 978-0-7803-8463-7, 28 September to 2 October 2004, 4044-4049

IV. In its statement of grounds of appeal, the appellant requested that a patent be granted on the basis of the claims in accordance with either a main request or one

of a 1st or 2nd auxiliary request, all of which were submitted with the statement of grounds of appeal. The claims of all requests were identical to those of the corresponding requests underlying the decision under appeal. If the main request was found not to be allowable, oral proceedings were requested.

V. The board issued a summons to oral proceedings. It also set out its preliminary opinion on the case (Article 15(1) RPBA 2020).

The board concurred with the examining division that the **main request** did not meet the requirements of Article 56 EPC.

The board also concurred with the examining division that the **1st auxiliary request** did not meet the requirements of Article 123(2) EPC.

The board was, however, of the opinion that the **2nd auxiliary request** involved an inventive step in view of document **D1** taken alone and indicated that a remittal to the examining division for further prosecution was likely.

VI. Oral proceedings were held on 3 March 2023. The appellant requested that the decision under appeal be set aside and that a patent be granted based on the main request or the 1st or 2nd auxiliary request.

VII. Sole independent **claim 1** of the **main request** reads as follows:

"An input apparatus comprising:

an input unit (12) for accepting a pressure input by a pressing object;

a load detection unit (13) for detecting a pressure load to the input unit;

a vibration unit (14) for vibrating the input unit; and a control unit (15) configured, when the pressure load detected by the load detection unit (13) satisfies a predetermined criterion for accepting an input to the input unit (12) to drive the vibration unit (14) to vibrate ultrasonically for a predetermined time period and with a predetermined vibration amplitude so as to generate a floating force on the pressing object to reduce a frictional force between the input unit (12) and the pressing object, and cause the pressing object to slip laterally with respect to the input unit (12)."

VIII. **Claim 1** of the **1st auxiliary request** reads as follows:

"An input apparatus comprising:

an input unit (12) for accepting a pressure input by a pressing object;

a load detection unit (13) for detecting a pressure load to the input unit;

a vibration unit (14) for vibrating the input unit; and

a control unit (15) configured, when the pressure load detected by the load detection unit (13) satisfies a predetermined criterion for accepting an input to the input unit (12) to drive the vibration unit (14) to vibrate ultrasonically for a predetermined time period and with a predetermined vibration amplitude so as to generate a floating force on the pressing object to reduce a frictional force between the input unit (12) and the pressing object, when the pressing object applies a pressure force in a direction shifted with respect to the normal direction of the input unit (12)."

IX. **Claim 1** of the **2nd auxiliary request** reads as follows:

"An input apparatus comprising:

an input unit (12) for accepting a pressure input by a pressing object;

a load detection unit (13) for detecting a pressure load to the input unit;

a vibration unit (14) for vibrating the input unit; and

a control unit (15) configured, when the pressure load detected by the load detection unit (13) satisfies a predetermined criterion for accepting an input to the input unit (12) to drive the vibration unit (14) to vibrate ultrasonically for a vibration time between 16 ms and 24 ms and with a predetermined vibration amplitude of 4 µm or more so as to generate a floating force on the pressing object to reduce a frictional force between the input unit (12) and the pressing object, wherein the predetermined criterion for accepting an input to the input unit (12) is 0.98 N or more and 2 N or less."

Reasons for the Decision

1. The application concerns an input apparatus having a plate-shaped input unit which accepts an input by the pressing of a touch panel and presents an operator with the same real feeling of pressing as the feeling of operating a push-button switch when the operator operates a pressing-type input unit.

2. Main request

2.1 Added subject-matter (Article 123(2) EPC)

In the decision under appeal, the examining division noted that the feature "*cause the pressing object to*

slip laterally with respect to the input unit" merely defined the result to be achieved since a lateral slip "*cannot be causally linked to the vibration applied*".

The appellant argued that "*the invention cannot otherwise be defined more precisely without unduly restricting the scope of the claims*". Furthermore, "*slipping ... may be directly and positively verified by tests known to the skilled person without undue experimentation*".

The board concurs with the examining division that the lateral slip of claim 1 cannot be caused by the vibration. As evident from the description, paragraph [0049]-[0051], the reduced friction is a *condition* to be satisfied for the slipping rather than the *cause* of the slipping. Therefore, the board holds that the feature "*to vibrate ... so as to cause the pressing object to slip laterally*" is not originally disclosed and thus extends beyond the content of the application as filed.

Consequently, the board considers that the subject-matter of **claim 1** does not fulfil the requirements of Article 123(2) EPC.

2.2 Novelty (Article 54(1) EPC)

In the decision under appeal, the examining division held that the subject-matter of claim 1 differed from what was known from document **D1** in that the vibrations were set "*for a predetermined time period with a predetermined vibration amplitude*".

The appellant submitted that document **D1** did also not disclose the feature "*cause the pressing object to slip laterally with respect to the input unit*".

Since the board considers that the feature argued by the appellant extends beyond what is originally disclosed, it concurs with the examining division that the subject-matter of claim 1 differs from what is known from document **D1** in that the vibrations are set "*for a predetermined time period with a predetermined vibration amplitude*".

2.3 Inventive step (Article 56 EPC)

The examining division held that the distinguishing feature defined a haptic signal and thus entailed a mere presentation of information. Therefore, it could not contribute to an inventive step. In an auxiliary line of reasoning, the examining division considered that the distinguishing feature was obvious in view of document **D1** (see **D1**, claim 26).

The appellant argued that the haptic effect provided by the invention solved the problem "*to provide a realistic sensation of operating a push-button switch*".

The board considers that the technical effect argued by the appellant is not achieved over the entire claimed range. Notably, when operating a real push-button switch, only a short vibration is felt when pushing the button down. However, in claim 1, the "*predetermined time*" is not limited. Therefore, it also encompasses durations significantly longer than the time a push button is typically pressed, thus providing feedback even when the button has been released. Therefore, the board holds that the distinguishing feature does not credibly solve a technical problem and cannot thus contribute to an inventive activity.

Consequently, the board considers that the subject-matter of **claim 1** is not inventive over the disclosure of document **D1**.

2.4 In view of the above, the **main request** is not allowable.

3. 1st auxiliary request

3.1 Amendments

Compared to claim 1 of the main request, the formulation "*and cause the pressing object to slip laterally with respect to the input unit*" has been replaced with:

> "when the pressing object applies a pressure force in a direction shifted with respect to the normal direction of the input unit"

3.2 Added subject-matter (Article 123(2) EPC)

In the decision under appeal, the examining division held that the newly added feature was not originally disclosed in combination with the preceding feature "*to reduce a frictional force*".

The appellant submitted that paragraph [0049] provided direct and unambiguous support for the amendment.

The board holds that this paragraph does not disclose the claimed combination "*to vibrate ... when the pressing object applies a pressure force in a direction shifted with respect to the normal direction of the input unit*". I.e. the claimed condition is not originally disclosed as a condition for the vibration.

Consequently, the board considers that claim 1 does not fulfil the requirements of Article 123(2) EPC.

3.3 Therefore, the **1st auxiliary request** is not allowable either.

4. 2nd auxiliary request

4.1 Novelty (Article 54(2) EPC)

Compared to claim 1 of the main request, the feature "*to vibrate ultrasonically etc.*" is amended to read as follows:

> "to vibrate ultrasonically for a vibration time between 16 ms and 24 ms and with a predetermined vibration amplitude of 4 µm or more so as to generate a floating force on the pressing object to reduce a frictional force between the input unit (12) and the pressing object, wherein the predetermined criterion for accepting an input to the input unit (12) is 0.98 N or more and 2 N or less."

In the decision under appeal, the examining division held that the following definitions of the parameters constituted the distinguishing features over document **D1**:

- a vibration time between 16 ms and 24 ms
- a vibration amplitude of 4 µm or more
- a criterion for input acceptance of $0.98\ N < F_{in} < 2\ N$

This was not contested by the appellant.

Thus, the board considers these features to constitute the distinguishing features over the disclosure of document **D1**.

4.2 Inventive step (Article 56 EPC)

In the decision under appeal, the examining division considered that the selected numerical values were

arbitrary values reflecting a subjective user preference and thus not inventive.

The appellant argued that the distinguishing feature was technical since it related to changing the frictional characteristics of the input unit. Notably, it caused the technical effect of defining a "*metal dome switch behavior*". The claimed parameters had been found by the inventors only after conducting extensive experiments and were thus not obvious.

The board considers the arguments of the appellant to be convincing. The board notes that document **D1** discloses in paragraph [0127] a "*pressure-dependent sensation for press confirmation*" but does not give any details about the parameters for achieving it. Therefore, the board holds that although the skilled person could have implemented the invention as claimed, there is no motivation in document **D1** for doing so.

Hence, the board considers that the invention defined in claim 1 according to the 2nd auxiliary request is not obvious in view of document **D1** taken alone.

5. Consequently, the decision under appeal has to be set aside.

6. Remittal (Article 11 RPBA)

Under Article 11 RPBA 2020, the board may remit the case to the department whose decision was appealed if there are special reasons for doing so.

The board notes that although documents **D2** to **D5** were also cited by the examining division as being highly relevant, they were neither analysed nor discussed in the decision under appeal in detail, nor in the proceedings leading to the decision.

Under these circumstances, the board does not consider it appropriate to decide on novelty and inventive step having regard to these further documents without a decision of the examining division. Thus, the board holds that special reasons exist for remitting the case to the examining division for further prosecution on the basis of the 2nd auxiliary request.

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