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Datasheet for the decision of 15 March 2019

Case Number: T 0859/16 - 3.5.05

Application Number: 06760398.5

Publication Number: 1894085

IPC: G06F3/033

Language of the proceedings: EN

Title of invention:
MOUSE WITH IMPROVED INPUT MECHANISMS

Applicant:
Apple Inc.

Headword:
Mouse with improved input mechanisms / Apple

Relevant legal provisions:
EPC Art. 56

Keyword:
Amendments - added subject-matter (no)
Claims - clarity (yes)
Inventive step - (no)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

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Case Number: T 0859/16 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 15 March 2019

Appellant: (Applicant)	Apple Inc. One Apple Park Way Cupertino CA 95014 (US)
Representative:	Kaufmann, Tobias Bardehle Pagenberg Partnerschaft mbB Patentanwälte, Rechtsanwälte Prinzregentenplatz 7 81675 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 27 October 2015 refusing European patent application No. 06760398.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	N. H. Uhlmann
	G. Weiss

Summary of Facts and Submissions

I. The appeal is against the examining division's decision to refuse European patent application No. 06760398.5.

II. The reasons for the decision under appeal refer to the following documents:

D1 EP 1 241 558;
D2 EP 0 768 619;
D3 JP 2000 242424 and a computer translation thereof;
D4 US 6 844 872;
D6 EP 0 795 837;
D13 JP 11 065759 and an official translation thereof;
D14 DE 102 01 193.

III. The examining division decided that the subject-matter of all claims of the main request and of the first to third auxiliary requests lacked inventive step, based on document D4 as the closest prior art.

IV. With the statement setting out the grounds of appeal, the appellant requested that the decision under appeal be set aside and a patent be granted based on the claims of the four requests underlying the contested decision.

V. The board arranged to hold oral proceedings.

VI. With the summons, the board set out its provisional view of the case. The board considered that the requirements of Articles 56, 84 and 123(2) EPC were not met.

VII. In response, the appellant filed amended main request and auxiliary request I to replace all requests previously on file, and submitted further arguments.

VIII. Oral proceedings were held on 15 March 2019 and were attended by the appellant.

IX. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request and auxiliary request I, both requests filed with a letter dated 15 February 2019.

X. Claim 1 of the main request reads as follows:

"A mouse (20,100) comprising:

- a housing (22) including a top member (26, 102) and a bottom member (24, 104), the top member (26) forming the entire top surface of the mouse without surface breaks or lines and forming a single physical button configured to pivot relative to the bottom member (24) to provide a clicking action;
- an internal switch (108) configured to generate an activation signal by the clicking action of the top member (26,102);
- a first touch zone (30A) and a second touch zone (30A) provided on the surface of the top member, wherein the first and second touch zones (30A) are positioned on a left and right side, respectively, of the top member (26, 102);
- a first touch sensor (112A) located underneath the surface of the top member (102) in a region of the first touch zone, the first sensor configured to generate a first touch signal if the top member is touched in the first touch zone;
- a second touch sensor (112B) located underneath the surface of the top member (102) in a region of the second touch zone, the second sensor configured to generate a second touch signal if the top member is touched in the second touch zone;
- a control circuit (474) configured to report a first button event if the activation signal and the first touch signal are generated without the second touch signal, and to report a second button event if the

activation signal and the second touch signal are generated without the first touch signal."

XI. Claim 1 of auxiliary request I differs from claim 1 of the main request in that the wording ", and to report nothing if the first or second touch signal is generated without the activation signal" is added in front of the full stop.

Reasons for the Decision

1. The appeal is admissible.

2. The invention

The application pertains to a computer mouse in which the entire upper part is used as one mechanical button. The problem addressed is to achieve the functionality of a standard two-button mouse.

The solution comprises two touch sensors located on the upper part and a controller which generates a first button signal when the only mechanical button is depressed, the first (left) sensor is touched and the second (right) sensor is not touched. Similarly, for a second button signal.

3. Prior art

Document D4 discloses a computer mouse, comprising one mechanical button which forms the entire upper part of it.

Document D1 discloses a computer mouse with two mechanical buttons and additional touch sensors, e.g. two touch sensors on one mechanical button.

4. Amendments and clarity

The board is satisfied that the amended claims of both requests on file comply with the requirements of Articles 84 and 123(2) EPC.

Main request

5. The board judges that the subject-matter of the independent claims does not involve an inventive step.

5.1 The board agrees with the decision under appeal that document D4 represents the closest prior art and that the subject-matter of claim 1 differs from the teaching of this document in features (A) - (D) as reproduced below:

(A) a first touch zone and a second touch zone provided on the surface of the top member, wherein the first and second touch zones are positioned on a left and right side, respectively, of the top member;

(B) a first touch sensor located underneath the surface of the top member in a region of the first touch zone, the first sensor configured to generate a first touch signal if the top member is touched in the first touch zone;

(C) a second touch sensor located underneath the surface of the top member in a region of the second touch zone, the second sensor configured to generate a second touch signal if the top member is touched in the second touch zone;

(D) a control circuit configured to report a first button event if the activation signal and the first touch signal are generated without the second touch signal, and to report a second button event if the

activation signal and the second touch signal are generated without the first touch signal.

This finding was not contested by the appellant.

5.2 With regard to the technical effect of these differentiating features and the objective technical problem to be solved, the board agrees with the appellant (letter of 15 February 2019, section II.3.b.) that the distinguishing features "provide for a unibody mouse having the functionality of left and right buttons. The objective problem solved by claim 1 can therefore be seen as how to improve the unibody mouse of D4 to increase input functionality."

5.3 Facing this objective technical problem to be solved, the skilled person would immediately recognise that increasing input functionality of a mouse with only one button means, first and foremost, that the improved mouse needs to have the functionality of left and right buttons. The skilled person would not foresee two mechanical buttons in the mouse as known from document D4, for at least two reasons: the resulting mouse would not be a unibody mouse anymore, and the mechanical construction would be more complicated and more error-prone.

The appellant argued that the skilled person would not necessarily stick to the "unibody" property of D4's mouse. The board disagrees, in view of the disadvantages of having a separate button located at the front of a mouse: "can be uncomfortable for those with very large hands, very small hands or deformed hands" (second paragraph of the background section of document D4).

The appellant submitted that a mechanical construction is not necessarily more complicated nor more error-

prone. The board is not persuaded. The section of the present application describing related art, in particular paragraph 5, sets out the disadvantages of a mechanical construction. Additionally, it is evident that having two mechanical buttons would rather let particulate matter get into the mouse and cause errors.

5.4 Consequently, the person skilled in the art would look for another solution. In this regard, document D1, which pertains to a computer mouse, discloses techniques for adding functionality to a mouse, which is able to detect when certain areas of the mouse are being touched and when portions of the mouse or the entire mouse are being moved (paragraph 46). Thus, the skilled person would take document D1 into consideration when striving to solve the problem referred to above.

Document D1 suggests further that a button of a mouse be augmented with two touch sensors (paragraphs 11, 52, 67, figure 10C). Moreover, this document discloses that an application would select an entry in a radial menu upon detecting a touch message from one out of a number of touch sensors positioned on a button and a depressing message indicating that this button 670 has been depressed (paragraph 87, figure 10H).

Based on the problem to be solved and on the teaching of document D1, the skilled person would add two touch sensors to the top member of the mouse described in document D4, the locating of those sensors underneath the surface of the top member being an obvious possibility.

The appellant explained that document D1 consistently referred to two or more buttons and that the touch sensors were used for adding auxiliary controls (e.g.

for scrolling up and down) and not for replacing a left and a right mouse button.

The board does not find these arguments convincing. As set out in section 5.3, *supra*, the person skilled in the art would not foresee two mechanical buttons. Moreover, paragraph 46 of document D1 teaches that the provision of touch sensors adds functionality to the mouse. In view of the objective technical problem (sections 5.2 and 5.3, *supra*), the skilled person would provide two touch sensors in order to add the desired functionality of left and right buttons.

5.5 Further in view of the teaching of document D1, messages indicating touching of the one or the other touch sensor and depressing the button, the latter being disclosed in document D4 as well, will be foreseen by the person skilled in the art. Additionally, and also in view of the mouse as described in document D1 and of the objective technical problem, the skilled person would make up for a processing of the messages referred to above in order to arrive at a modified mouse which has the functionality of left and right buttons. In other words, the modified mouse would have to report two types of events to a computer: a left button click and a right button click. Based on the three types of messages described in document D1, namely a "button depressed" (paragraph 37, from the switch located beneath a button), "first touch sensor touched" and "second touch sensor touched" (paragraph 35, state of touch sensors), the board is convinced that the skilled person would, by way of straight-forward development steps, arrive at a control flow in which a left button click event is generated when the button is depressed, the left touch sensor (item 624 on figure 10C) is

touched, and the right touch sensor (item 626 on figure 10C) is not touched, the latter condition in order to prevent event generation in ambiguous touch situations. Similar observations apply for a right button click event.
Finally, in the board's view, this event generation can equally be implemented either on a controller inside of the mouse or in the computer connected to the mouse, both alternatives being well known to the skilled person.

The appellant argued that document D1 does not disclose the combination of a touch signal and a click signal, referring to paragraph 100, according to which the touching alone triggers the page-up operation. The board disagrees because D1 clearly discloses such combination, see paragraphs 87 and 112 and figures 36A and 36B.

5.6 The appellant submitted further that no motivation is apparent to isolate the touch sensors from D1 and to add them to the unibody mouse of D4, and that the two touch sensors are intrinsically connected to the mechanical button structures in D1.

The board is not convinced because the skilled person does not need to isolate the touch zones from D1. Instead, the teaching of having two touch sensors on one button is applied to the button of document D4. In actual fact, both the mouse of document D1 and the mouse as claimed comprise two touch sensors positioned on a button.

The appellant argued further that the two touch sensors of D1, figure 10C, are provided on the left button, which goes against the idea of the invention to replace

left and right mechanical buttons with left and right touch sensors.

The board is not persuaded. D1 teaches in paragraph 67 that buttons can be augmented with sensors that detect contact, in particular (figure 10C) a left and a right touch sensor. That figure 10C shows the touch zones on the left button is merely an example. In view of the problem set out in sections 5.2 and 5.3, *supra*, the skilled person would position two touch sensors accordingly.

The appellant explained that D1 teaches that ridges are necessary to separate the touch zones. Moreover, D1 would show the touch zones on the same side of the mouse.

The board is not convinced. The mouse as disclosed in the closest prior-art document D4 does not comprise any ridges, surface breaks or lines. D1 does not teach that the ridges are necessary; some examples are without ridges and without lines (e.g. figures 10B, 10F, paragraph 52). Additionally, paragraph 4 of the application, which forms the basis for the feature "no surface breaks and lines", states that this feature makes the mouse more elegant. In board's view, this is an aesthetic effect which cannot contribute towards inventive step.
With regard to the position of the touch sensors, it follows plainly from the problem to be solved.

Auxiliary request I

6. The board judges that the subject-matter of the independent claims does not involve an inventive step.

6.1 The appellant argued that document D1 taught away from the added feature "to report nothing if the first or

second touch signal is generated without the activation signal" because touch events therein were reported even when no click is performed.

While this observation with regard to document D1 is correct, the application in suit does not attribute any significance or any particular effect to "reporting nothing". In actual fact, figure 6 merely discloses "reporting nothing" as an alternative to "reporting a light button event", the latter corresponding to the teaching of document D1.

The appellant submitted that the technical effect of the added feature would be "avoiding accidental reporting".

The board agrees that a skilled person could derive such an effect from the feature in question. However, paragraphs 61 and 62 of the application make clear that the touch sensors may operate independently of the mechanical switch and that a user of the host system may choose, via a control panel, how the signals from the sensors and the switch are to be interpreted. Consequently, the feature "to report nothing if the first or second touch signal is generated without the activation signal" corresponds to one of two alternatives, both of which are well within the reach of the person skilled in the art. Facing the problem to modify the mouse in order to achieve the effect referred to above, the skilled person would consider that merely touching the mouse is a case of accidental interaction of a user with the mouse, would suppress the reporting of such accidental interaction, and would arrive at the feature in question in an obvious manner. In this regard, the application in suit does not refer to any difficulties the person skilled in the art might encounter, nor is the board aware of any.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

C. Spira A. Ritzka

Decision electronically authenticated