

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JARI PALONEIMI, TIMO KINNUNEN and VESA ULVINEN

Appeal 2007-3598
Application 09/738,710¹
Technology Center 2600

Decided: March 25, 2008

Before JAMESON LEE, SALLY C. MEDLEY and JAMES T. MOORE,
Administrative Patent Judges.

MEDLEY, *Administrative Patent Judge.*

DECISION ON APPEAL

¹ Application for patent filed 15 Dec. 2000. The real party in interest is Nokia Mobile Phones Ltd.

A. Statement of the Case

This is an appeal under 35 U.S.C. § 134 from the Examiner's Final Rejection of claims 1 and 3-13². We have jurisdiction under 35 U.S.C. § 6(b). We reverse.

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Borza	US 6,333,989	Dec. 25, 2001
Kramer	US 6,408,087	Jun. 18, 2002
Scott	WO 97/29477	Aug. 14, 1997

Claims 1, 4-10 and 12-13 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kramer in view of Borza.

Claims 3 and 11 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Kramer in view of Borza and further in view of Scott.

BACKGROUND

The invention is related to a user input device and associated method of using the user input device. The user input device includes a fingerprint sensor **5** for sensing surface relief of human skin, a movement detector **12** for detecting movement of skin across the sensor, and a user interface apparatus or display **8** responsive to the movement detector to alter its state in correspondence to the detected movement. The fingerprint sensor **5** includes a plurality of sensing units arranged in a substantially planar array. The fingerprint sensor includes a primary linear array **10** of sensing units and a secondary linear array **11** of sensing units disposed orthogonally to the primary linear array **10** of sensing units. The spacing between the sensing

² Claims 2 and 14 were cancelled in the Response filed 01 Mar. 2004.

units of the secondary linear array **11** is less closely spaced than the sensing units of the primary linear array **10**. (Abs. Spec. 2-5 and **figs. 1-2**),

B. Issues

The first issue before us is whether Applicants have shown that the Examiner erred in determining that claims 1, 4-10 and 12-13 are unpatentable under 35 U.S.C. § 103(a) over Kramer in view of Borza?

The second issue before us is whether Applicants have shown that the Examiner erred in determining that claims 3 and 11 are unpatentable under 35 U.S.C. § 103(a) over Kramer in view of Borza and further in view of Scott?

For the reasons that follow, Applicants have sufficiently shown that the Examiner erred in determining claims 1, 4-10 and 12-13 as unpatentable over Kramer in view of Borza and claims 3 and 11 as unpatentable over Kramer in view of Borza and further in view of Scott.

C. Findings of Fact (“FF”)

The record supports the following finding of facts as well as any other findings of fact set forth in this opinion by at least a preponderance of the evidence.

1. Applicants' claims 1 and 3-13 are the subject of this appeal.
2. Claims 1 and 13 are independent claims.
3. Claims 1, 4-10 and 12-13 stand or fall together (App. Br. 5).
4. Claims 3 and 11 stand or fall together (App. Br. 11).
5. Claims 1 is representative and is as follows:

A user input device comprising:
a sensor capable of sensing surface relief of human skin;
a movement detector responsive to variation of the output
of the sensor for detecting movement of skin over the

sensor; and
user interface apparatus responsive to the movement detector to alter its state in correspondence to the detected movement
wherein the sensor comprises a plurality of sensing units arranged in a substantially planar array such that the sensor comprises a first sensing section extending in a first direction and a second sensing section extending in a second direction, wherein the sensing units are more closely spaced in the first direction than in the second direction.

6. The Examiner found that Kramer describes a user input device including a sensor **21** capable of sensing surface relief of human skin, a movement detector **39** responsive to variation of the output of the sensor for detecting movement of skin over the sensor, a user interface apparatus **25** responsive to the movement detector and alters its state in correspondence to the detected movement, where the sensor includes a plurality of sensing units **29** arranged in a substantially planar array and includes a first sensing section extending in a first horizontal direction and a second sensing section extending in a second vertical direction (Ans. 3-4, Final Rejection 3-4 and Kramer **fig. 2**, col. 2, ll. 20-32. and col. 3: ll. 4-36, ll. 42-52, ll. 63-65).
7. The Examiner found that Kramer does not describe the sensing units as more closely spaced in the first direction than in the second direction (Ans. 4 and Final Rejection 4).
8. The Examiner found that sensing units more closely spaced in a first direction than a second direction is exceedingly well known in the art and cited Borza as exemplary of this feature (Ans. 4 and Final Rejection 4).

9. The Examiner found that Borza describes a plurality of sensing units **17** that are more closely spaced in the first horizontal direction than in the second vertical direction (Ans. 4, Final Rejection 4 and Borza **fig. 3a** and col. 6, ll. 22-49).
10. The Examiner found that Borza describes the horizontal spacing between the sensing units **17** in both pads **100** and **101** is less than the vertical spacing between the sensing units **17** in sensing pad **100** and the sensing units **17** in pad **101** and the vertical spacing is Δd (Ans. 4 and Borza **fig. 3a**).
11. The Examiner concluded that it would have been obvious to a person with ordinary skill in the art to modify the sensor of Kramer so that the sensing units are more closely spaced in the first horizontal direction than in the second vertical direction as taught by Borza in order to reduce the cost of the fingerprint imaging system by using lower resolution sensors for motion detection and higher resolution sensors for fingerprint feature detection (Ans. 4-5 and Final Rejection 4).
12. In the written description, Borza describes Δd as the predetermined distance that the fingerprint is known to have moved when there is correlation between the data measured by the first sensing pad **100** and the second sensing pad **101** (col. 4, ll. 5-13 and col. 6, ll. 35-49).
13. In the written description, Borza does not describe Δd as the spacing between the first and second sensing pads **100** and **101**.
14. In the written description, Borza does not describe that Δd is greater than the spacing between the individual sensing units **17**.

D. Principles of Law

“[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue.” *Hockerson-Halberstadt, Inc. v. Avia Group International, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007).

“Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined.” *Id.*

E. Analysis

Claims 1, 4-10 and 12-13

Claims 1, 4-10 and 12-13 stand or fall together (FF³ 3). Independent claim 1 is representative and recites the limitation “wherein the sensing units are more closely spaced in the first direction than in the second direction”. The Examiner found that Kramer disclosed all of the limitations of claim 1, with the exception of the differences in spacing of the sensing units (FFs 6-7). The Examiner found that Borza describes the horizontal spacing

³ FF denotes Finding of Fact.

between the sensing units **17** in both pads **100** and **101** is less than the vertical spacing between the sensing units **17** in sensing pad **100** and the sensing units **17** in pad **101** shown as Δd in Fig. 3a (FFs 9-10). Figure 3a from Borza is reproduced below:

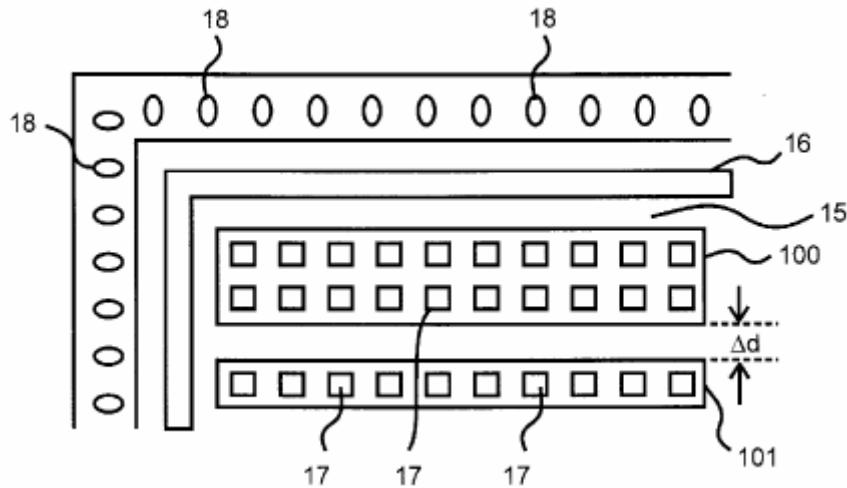


Figure 3a describes a first sensing pad and a second sensing pad, where the sensing elements on each sensing pad appear to be spaced equally apart, but the sensing pads appear to be separated from each other by a distance greater than the spacing between the sensing elements. The Examiner concluded that it would have been obvious to a person with ordinary skill in the art to modify the sensor of Kramer so that the sensing units are more closely spaced in the first horizontal direction than in the second vertical direction as taught by Borza in order to reduce the cost of the fingerprint imaging system by using lower resolution sensors for motion detection and higher resolution sensors for fingerprint feature detection (FF 11).

Applicants do not contest the Examiner's findings with respect to Kramer. Applicants argue that Borza does not describe or suggest a sensor with sensing units more closely spaced in one direction than in a second direction (App. Br. 5). Applicants argue that a skilled person would

consider fig. 3a to be only a schematic drawing intended to illustrate the general arrangement of the sensing pad and would not consider it a scale drawing from which the relative dimensions of the components of the sensor can be ascertained (App. Br. 8). Applicants also argue that Borza does not describe that Δd is different from the spacing between the sensing units **17** (App. Br. 7). Applicants further argue that there is nothing in Borza to suggest that the spacing between the sensing pads **100** and **101** and the different spacing between the sensing units **17** in the individual sensing pads, as illustrated in fig. 3a, is an accurate representation (App. Br. 8).

In response to Applicants' arguments, the Examiner contends that the distance Δd separating the two sensing pads **100** and **101** must be greater than the 60 μm horizontal spacing between the sensing units **17** in sensing pad **100**, since it would be inefficient to use two separate sensing pads separated by such a microscopic distance. The Examiner opines that such a microscopic distance would be impractical for determining the distance the fingertip has traveled for image reconstruction, and it would be inconsistent with the objective of providing an imaging device that is inexpensive and practicable to manufacture (Ans. 12-13).

"[I]t is well established that patent drawings do not define the precise proportions of the elements and may not be relied on to show particular sizes if the specification is completely silent on the issue."⁴

As asserted by the Examiner, figure 3a appears to describe Δd as greater than the horizontal spacing between the sensing elements; however, the Examiner has not directed us to where the Borza specification describes Δd

⁴ *Hockerson-Halberstadt, Inc. v. Avia Group International, Inc.*, 222 F.3d 951, 956 (Fed. Cir. 2000).

as greater than the spacing between the sensing elements in each sensing pad. In fact, Borza describes Δd as the predetermined distance that a fingerprint is known to have moved when there is correlation between the data measured by the first sensing pad **100** and the second sensing pad **101** (FF 12).

However, it is not clear from the Borza specification what is represented by the predetermined distance Δd . The predetermined distance Δd could be representative of the distance between a specific row of the first sensing pad (i.e. the first row crossed by the fingertip) and a specific row of the second sensing pad (i.e. the last row crossed by the fingertip) which has data that correlates to the data measured by the specific row of the first sensing pad.

In any case, Borza does not describe Δd as the spacing between the first and second sensing pads **100** and **101**, nor does it describe Δd as greater than the spacing between the individual sensing units **17** (FFs 12- 13). As a result, the Borza fig. 3a cannot be relied on for the precise proportions of the spacing of the sensing units as more closely spaced in the first direction than in the second direction.

Moreover, the Examiner's arguments that the distance Δd separating the two sensing pads **100** and **101** must be greater than 60 μm because it would otherwise be inefficient, impractical, and expensive to manufacture are unconvincing because the Examiner has not provided any supporting evidence for the assertions made.

For all these reasons we find that Applicant has sufficiently shown that the Examiner erred in determining that claims 1, 4-10 and 12-13 are unpatentable under 35 U.S.C. § 103(a) over Kramer in view of Borza.

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Claims 3 and 11

Since claims 3 and 11 include all the limitations of claim 1, for the same reasons as explained above, Applicants have sufficiently demonstrated that the Examiner erred in determining that claims 3 and 11 are unpatentable 35 U.S.C. § 103(a) over Kramer in view of Borza and further in view of Scott.

Decision

Upon consideration of the record, and for the reasons given, the Examiner's rejections of claims 1, 4-10 and 12-13 as unpatentable over Kramer in view of Borza and claims 3 and 11 as unpatentable over Kramer in view of Borza and further in view of Scott are reversed.

REVERSED

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