



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
**United States Patent and Trademark Office**  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/994,677	04/29/2011	Laurent Jeanneteau	AEG-54402	4981
116	7590	09/18/2019	EXAMINER	
PEARNE & GORDON LLP 1801 EAST 9TH STREET SUITE 1200 CLEVELAND, OH 44114-3108			XIE, KWIN	
			ART UNIT	PAPER NUMBER
			2626	
			NOTIFICATION DATE	DELIVERY MODE
			09/18/2019	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patdocket@pearne.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* LAURENT JEANNETEAU, THIBAUT RIGOLLE,  
MASSIMO NOSTRO, and  
ANDREA GRASSANO

---

Appeal 2017-010162  
Application 12/994,677  
Technology Center 2600

---

Before THU A. DANG, JASON J. CHUNG, and JOHN D. HAMANN,  
*Administrative Patent Judges.*

DANG, *Administrative Patent Judge.*

DECISION ON APPEAL

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Final Rejection of claims 11–13, 15–18, 21, 22, 26, 27, and 31–35.<sup>1</sup> Claims 1–10, 14, 19, 20, 23–25, and 28–30 were previously canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

---

<sup>1</sup> The real party in interest in this appeal is the assignee, Electrolux Home Products Corporation. App. Br. 2.

## A. INVENTION

According to Appellants, the invention “relates to an input device for a home appliance for operation with a finger.” Spec. ¶ 1.

## B. ILLUSTRATIVE CLAIM

Claim 11 is exemplary:

11. An input device for a home appliance for operation with a finger, comprising:
  - sensitive keys arranged below a surface in a two-dimensional array;
  - a series of equivoltage areas surrounding each of the sensitive keys, at least some of the equivoltage areas surrounding adjacent sensitive keys overlap one another, wherein a key voltage is generated by each sensitive key based on the nearness of the finger, the relative location of the finger in the equivoltage areas, and the size of the finger, and such that a presence of the finger on one of the sensitive keys causes different key voltages to be generated by corresponding different sensitive keys, including at least one high key voltage that is generated by a sensitive key that the finger is touching and at least one low key voltage that is generated by a sensitive key that the finger is near but not touching;
  - a detection unit, wherein the detection unit compares a magnitude of all of the key voltages that are generated by the sensitive keys, including the at least one low key voltage that is generated by the sensitive key that the finger is near but not touching, and such that all of the key voltages are compared; and
    - wherein, in the detection unit, a position of the finger is detected using the comparison of all the key voltages, including the at least one low key voltage generated by the sensitive key that the finger is near but not touching, and wherein the detected finger position is used as a user input, and
      - wherein the detection of the position is repeated after a predefined time span, and
        - wherein a movement of the finger is detected based on a starting point,
        - wherein an acceleration of the finger movement is detected by comparing at least three detected positions of the finger, and

wherein at least one of the at least three detected positions of the finger is a location between the sensitive keys.

### C. REJECTIONS

Claims 11–13, 15–18, 31, and 32 stand rejected under 35 U.S.C. § 103(a) over Philipp (US 7,821,425 B2; issued Oct. 26, 2010), and Hotelling (US 2008/0006453 A1; published Jan. 10, 2008).

Claims 21, 22, 26, and 27 stand rejected under 35 U.S.C. § 103(a) over Philipp, Hotelling, Ono (US 7,348,898 B2, issued Mar., 25, 2008), Mouse Keys (Aabilityhub.com).

Claims 33–35 stand rejected under 35 U.S.C. § 103(a) over Philipp, Hotelling, and Park (US 2010/0020027 A1; published Jan. 28, 2010).

### II. ISSUES

The principal issues before us are whether the Examiner has erred in finding the combination of Phillip and Hotelling teaches or *would have suggested* an “input device” for “operation with a finger” which comprises:

a “detection unit,” wherein

“a position of the finger is detected using the *comparison of all the key voltages*,” and

“an acceleration of the finger movement is detected by comparing at least three detected positions of the finger,” wherein “at least one of the at least three detected positions is *a location between the sensitive keys*.”

Claim 11 (emphasis added).

### III. FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

#### *Philipp*

1. Philipp teaches a method of removing keying ambiguity by measuring a detected signal strength associated with each key in an array, comparing the measured signal strengths to find a maximum, and determining that the key having the maximum signal strength is the unique user-selected key. Philipp, 2:3–11. Philipp recognizes that a finger may encompass more than the intended key, for example, a fingerprint outline encompasses keys other than the intended key. *Id.* at 4:63–5:4. Further, Philipp recognizes a case in which a user brings his or her finger up to a keyboard so that the point of touch is between two keys. *Id.* at 8:34–38. Accordingly, Philipp aims to resolve keying ambiguities. *Id.* at 7:19–22.

#### *Hotelling*

2. Hotelling teaches a capacitance sensing touch device. Hotelling ¶ 4. A touch pad is provided to determine the angular location, direction, speed and acceleration of the finger when the finger is moved across the top planar surface of the touch pad in a rotating manner. *Id.* at ¶ 104. The touch pad generally consists of a touchable outer surface for receiving a finger for manipulation on the touch pad and a sensor arrangement beneath the touchable outer surface, wherein the sensor arrangement includes a plurality of sensors that are configured to activate as the finger performs an action over them. *Id.* at ¶ 105. Hotelling teaches that the touch sensing device could comprise a touch/scrolling region and buttons, wherein the buttons may be positioned inside and/or outside the scrolling region. *Id.* at ¶ 81.

#### IV. ANALYSIS

We have reviewed the Examiner's rejections in light of Appellants' arguments presented in this appeal. Arguments which Appellants could have made, but did not make in the Brief are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv) (2016). On the record before us, we are unpersuaded the Examiner has erred. We adopt as our own the findings and reasons set forth in the rejections from which the appeal is taken and in the Examiner's Answer, and provide the following for highlighting and emphasis.

Appellants contend that Philipp and Hotelling do not teach or suggest “a position of the finger is detected using the comparison of all the key voltages,” and “wherein an acceleration of the finger movement is detected by comparing at least three detected positions of the finger,” and “wherein at least one of the at least three detected position of the finger is a location between the sensitive keys.” Appeal Br. 10 (emphasis in original). In particular, Appellants contend that Philipp is “centered in figuring out the unique ‘key’ the user intended, instead of the specific location of the finger for accurate acceleration detection,” as required by the claims. *Id.* at 12. According to Appellants, “Philipp always assigns the finger to a specific key nearby, whereas the presently claimed invention dutifully detects and records this finger's specific location as being between the keys.” *Id.* at 11.

Further, Appellants contend that “Hotelling does not teach the concept of ‘three positions,’” but instead, Hotelling merely collects “ ‘the number of signals in a given time frame,’ where these signals is exclusively referring to the ‘ON’ signal of each sensor.” *Id.* at 12. Thus, Appellants contend that “[i]t would not be obvious for a person skilled in the art to use the

ambiguous information that Philipp strongly taught against in combining with Hotelling.” *Id.* at 12–13.

We are not persuaded by Appellants’ arguments.

As an initial matter of claim construction, we give the claims, as specifically recited, their broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997). While we interpret claims broadly but reasonably in light of the Specification, we, nonetheless, must not import limitations from the Specification into the claims. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Although Appellants contend that Philipp is “centered in figuring out the unique ‘key’ the user intended” and that “Philipp always assigns the finger to a specific key” near the user location (Appeal Br. 11–12), claim 11 does not preclude figuring out the key intended by the user to detect a position of the finger, or assigning the finger to a specific key based on the detection. *See* claim 11. Rather, claim 11 merely requires that “the position of the finger is detected” by comparison of the key voltages.

Philipp teaches detecting signal strength associated with each key in an array of keys being touched by a user, comparing the measured signal strengths to find a maximum, and determining that the key having the maximum signal strength is the unique user-selected key. FF 1. As the Examiner finds, Philipp teaches an “iterative” method for “repeatedly measuring a detected signal strength associated with each key” responsive to “a degree of coupling between the key and a user.” Ans. 20–21. According to the Examiner, in Philipp, a “high key voltage” is generated by a sensitive key that “the finger is touching,” and in comparison, a “low key voltage” is

generated by a sensitive key that “the finger is near but not touching.” *Id.* at 4. We find no error with the Examiner’s reliance on Philipp to teach or at least suggest an “input device” for “operation with a finger” which comprises a “detection unit” wherein “a position of the finger is detected using the comparison of all the key voltages” as recited. Claim 11.

Hotelling teaches a touch pad provided to determine acceleration of the finger when the finger is moved across the top planar surface of the touch pad in a rotating/swirling manner. FF 2. The touch pad comprises a plurality of sensors there below that are activated as the finger performs an action over them. *Id.* As the Examiner finds, Hotelling teaches “acceleration detection through use of a number of signals indicating three positions,” wherein “the swirling motion described would cause a continuous motion that would be between keys.” Ans. 6. That is, the Examiner finds that “Hotelling clearly and explicitly teaches acceleration of finger movement across multiple detected positions of the finger,” wherein **“number of signals can include three or more and position is between keys since it involves a swirling or scrolling motion.”** *Id.* at 21–22.

Furthermore, Philipp recognizes that a finger may encompass more than the intended key, for example, the point of touch could be between two keys. FF 1. As the Examiner finds, Philipp addresses “situations where a finger is between two keys.” Ans. 22. We agree with the Examiner that both Philipp and Hotelling are directed to the same field of endeavor, addressing “touch keyboards detecting touches between virtual keys,” that they are “readily compatible with each other,” wherein it would have been

obvious to combine the references, and thus “to provide the acceleration element [of Hotelling] to the device of Philipp.” *Id.* at 23.

Accordingly, we find no error with the Examiner’s reliance on the combination of Philipp and Hotelling to teach or at least suggest that “an acceleration of the finger movement is detected by comparing at least three detected positions of the finger,” and that “at least one of the at least three detected positions of the finger is a location between the sensitive keys,” as claimed. Claim 11.

We are not persuaded by Appellants’ contention that “Hotelling does not teach the concept of ‘three positions’” but instead, Hotelling merely “collects” signals that refers to the “‘ON’ signal of each sensor.” Appeal Br. 12. Hotelling teaches that acceleration is determined using a plurality of sensors (which covers three sensors) that are activated as the finger performs an action over them. FF 2. We agree with the Examiner that Hotelling teaches or at least suggests determining acceleration of the finger movement by comparing the positions of the finger as it moves over the sensors while moving over the touch pad. *Id.* In view of Philipp’s recognition that the finger movement over the keys includes a position between the keys (FF 1), we agree that Phillip in view of Hotelling at least suggest that at least one of the detected positions includes “a location between the sensitive keys.” Claim 11.

By contending that “[i]t would not be obvious for a person skilled in the art to use the ambiguous information that Philipp strongly taught against in combining with Hotelling” (Appeal Br.12–13), Appellants appear to have viewed the combination of the references from a different perspective than that of the Examiner. That is, this contention does not take into account

what the collective teachings of the prior art would have suggested to one of ordinary skill in the art. *See In re Keller*, 642 F.2d 413, 425 (CCPA 1981). The Supreme Court guides that the conclusion of obviousness can be based on the background knowledge possessed by a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007).

Here, we agree with the Examiner that it would have been obvious to a person of ordinary creativity in the art that Philipp could be modified to include detection of movement of the fingertip across the buttons, wherein “[t]he coordinate input device of Philipp could be modified to include measurement of the acceleration of the movement of the fingertip.” Ans. 6. That is, the skilled artisan is “a person of ordinary creativity, not an automaton.” *See KSR*, 550 U.S. at 421. Appellants have presented no evidence that adding a step of measuring the acceleration of movement of the finger in the input device of Philipp would have been “uniquely challenging or difficult for one of ordinary skill in the art.” *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007) (citing *KSR*, 550 U.S. at 418).

In view of the above, we find no error with the Examiner’s finding the combination of Philipp and Hotelling teaches or at least suggests the contested limitations of claim 11. Appellants do not provide substantive arguments for independent claim 18, and claims 12, 13, 15–17, 31 and 32 depending respectively from claims 11 and 18. Appeal Br. 22–23. Accordingly, claims 12, 13, 15–18, 31 and 32 fall with claim 11.

Similarly, Appellants do not provide substantive arguments for claims 21, 22, 26, 27, and 33–35 separate from those for claim 11. Appeal Br. 23–25. Accordingly, we also affirm the Examiner’s rejections of claims 21, 22,

Appeal 2017-010162  
Application 12/994,677

26, and 27 over Philipp and Hotelling in further view of Ono and Mouse Keys; and claims 33–35 over Philipp and Hotelling, in further view of Park.

#### V. DECISION

We affirm the Examiner’s rejections of claims 1–6, 8–19, and 21–24 under 35 U.S.C. § 103(a).

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED