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ea@wenderoth.com
kmiller@wenderoth.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte YOSHIFUMI HIROSE and SHOICHI ARAKI

Appeal 2019-005454
Application 14/587,182
Technology Center 2600

Before ADAM J. PYONIN, MELISSA A. HAAPALA, and
MICHAEL J. ENGLE, *Administrative Patent Judges*.

PYONIN, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's rejection. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

¹ We use the word "Appellant" to refer to "applicant" as defined in 37
C.F.R. § 1.42(a). Appellant identifies the real party in interest as Panasonic
Intellectual Property Management Co., LTD. Appeal Br. 2.

STATEMENT OF THE CASE

Introduction

The Application is directed to “feedback devices and haptic feedback methods for providing haptic feedback in response to an action performed on a touch panel by a user.” Spec. 1:16–18. Claims 1 and 5–15 are pending; claims 1 and 12 are independent. Appeal Br. 11–15. Claim 1 is reproduced below for reference (emphasis added):

1. A haptic feedback device which provides haptic feedback to a user by vibrating a panel, the haptic feedback device comprising:
 - the panel;
 - a plurality of actuators placed at mutually different positions on the panel for vibrating the panel;
 - a detector that detects a plurality of touches in concurrent contact with the panel and detects a plurality of positions, on the panel, of the plurality of touches;
 - a processor that derives touch information including at least one of (i) load information indicating at least one of a plurality of loads applied to the panel at the plurality of touch positions, or (ii) hardness information indicating hardness of at least one of a plurality of objects touching the panel at the plurality of touch positions;
 - determines, from among the plurality of touch positions, a first touch position at which to provide haptic feedback by vibration according to a predetermined haptic signal;
 - stores, in storage, transfer functions from each of the plurality of actuators to each of a plurality of positions on the panel, for each of a plurality of different pieces of the touch information, the transfer functions varying depending on the touch information, even for identical positions;*
 - obtains, from the storage, the transfer functions corresponding to (i) the plurality of positions detected by the detector and (ii) the derived touch information; and
 - generates driving signals for driving the plurality of actuators to vibrate the panel according to the haptic signal at the

first touch position and vibrate the panel at a second touch position included in the plurality of touch positions more weakly than at the first touch position by using the obtained transfer functions,

wherein the plurality of actuators vibrate the panel by applying force to the panel based on the driving signals.

References and Rejections

The Examiner relies on the following prior art:

Name	Reference	Date
East	US 2010/0302184 A1	Dec. 2, 2010
Cooperstock	US 2010/0308982 A1	Dec. 9, 2010
Harris167	US 2011/0090167 A1	Apr. 21, 2011
Saynac	US 2011/0260994 A1	Oct. 27, 2011
Harris407	US 2012/0229407 A1	Sept. 13, 2012
Furumoto	US 2013/0037687 A1	Feb. 14, 2013
Harris400	US 2013/0278400 A1	Oct. 24, 2013

Claims 1, 5, and 12–15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Harris167, Saynac, Harris407, Furumoto, and East. Final Act. 3.

Claims 6–10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Harris167, Saynac, Harris407, Furumoto, East, and Harris400. Final Act. 21.

Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Harris167, Saynac, Harris407, Furumoto, East, Harris400, and Cooperstock. Final Act. 28.

ANALYSIS

We have reviewed the Examiner’s rejections in light of Appellant’s arguments. Arguments that Appellant could have made but chose not to

make are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(iv). We are not persuaded that the Examiner erred.

Appellant argues the Examiner’s rejection is in error, because “one technical feature of the present application is that, when force is applied both by the actuators and by touch (load), the transfer function is dependent not on the vibrating force applied by the actuators, but on the force applied by the touch,” and “[t]his technical feature is not rendered obvious by the combination of Harris ‘407 and Furumoto.” Appeal Br. 6. Particularly, Appellant contends “Harris ‘407 does not disclose applying unit forces of magnitude other than 1N, and thus does not disclose the [recited] feature of ‘stores ... transfer functions varying depending on the touch information, even for identical positions.” *Id.* at 5. Appellant further contends that “the equation $MX''+KX=F$ in Furumoto does not suggest that X/F (the transfer function) is dependent on F [(force)].” *Id.* at 6.

We are not persuaded the Examiner errs. The disputed limitation of claim 1 is “stores, in storage, transfer functions from each of the plurality of actuators to each of a plurality of positions on the panel, for each of a plurality of different pieces of the touch information, the transfer functions varying depending on the touch information, even for identical positions” (the “*storing limitation*”). *See* Appeal Br. 5. The Examiner finds this *storing limitation* is rendered obvious based on the combined teachings of Harris167, Saynac, Harris407, and Furumoto. *See* Final Act. 10 (“Harris167, as modified by Saynac, Harris407, and Furumoto, teaches the transfer functions being different based on applied force, even for identical positions.”).

Appellant does not show the Examiner's reliance on Harris407 and Furumoto for particular aspects of the *storing limitation* is in error. *See id.* Harris407 is correctly cited for teaching storing transfer functions based on touch inputs. *See* Ans. 4; Final Act. 8; Harris407 ¶ 21 (“The resulting inverse transfer functions may be stored for later use by the device.”), ¶ 93. The Examiner cites Furumoto for teaching transfer functions varying depending on force, finding the reference shows “a transfer function of [displacement X/ Force F]” that varies “based on the applied force.” Final Act. 9 (alteration in original), 10; Furumoto Fig. 3B. In response, Appellant argues Furumoto suggests a different transfer function “expressed by $1/(Ms^2+K)$ ” (Appeal Br. 6), but Appellant does not explain how the Examiner errs in relying on Furumoto's disclosure of “a transfer function of [displacement X/force F]” (Furumoto ¶ 20 (alteration in original)). *See* Ans. 4 (“Furumoto explicitly recites the transfer functions which include additional force component information.”). Thus, we are not persuaded the Examiner errs in finding the Harris407 and Furumoto combination teaches storing a transfer function that will vary based on a force. *See* Final Act. 10; Appeal Br. 4, 5.

Moreover, Appellant's arguments attack the teachings of Harris407 and Furumoto individually, and do not show the Examiner errs in relying on the combination of cited references. Particularly, Appellant does not challenge the Examiner's finding that Harris167 teaches the claimed haptic feedback device using transfer functions for a plurality of touches, and that “Saynac teaches a system for determining the location and pressure of a touch load which derives touch information including at least one of (i) load information.” Final Act. 6 (emphasis omitted); *see also* Final Act. 3–4;

Harris167 ¶¶ 50, 51; Saynac ¶ 89 (“determine the actual value of the touch load or any other value measured by the row, column and square sensors (i.e. resistance, pressure)”). Nor does Appellant challenge the Examiner’s reasoning for combining the various references. *See* Final Act. 3–11.

Accordingly, we are not persuaded the Examiner errs in finding one of ordinary skill would have combined the teachings of the cited references, yielding the haptic feedback device including the *storing limitation*, as claimed. *See Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (“[T]he Board will not, as a general matter, unilaterally review . . . uncontested aspects of the rejection.”).

Further, we find unpersuasive Appellant’s argument that “as recognized by the Examiner . . . the force F in Furumoto is force that applies vibration, and therefore corresponds to the force applied by the actuators, rather than force as touch information.” Appeal Br. 6 (emphasis omitted). First, we note the Examiner does not recognize any such lack of teaching, as Appellant appears to refer to the Examiner’s paraphrasing of Appellant’s argument and not the Examiner’s own analysis. *See* page 1 of Applicant-Initiated Interview Summary, mailed October 4, 2018. Second, as discussed above, the Examiner relies on Harris407 and Saynac for touch information. *See id.* (“the cited prior art teaches these limitations in combination”); Final Act. 6. Appellant does not present argument showing the Examiner errs in finding one of ordinary skill would combine Harris407 and Saynac’s touch information with Furumoto’s teaching of varying transfer functions. *See* Final Act. 10. Thus, we are not persuaded the Examiner errs.

CONCLUSION

We are not persuaded the Examiner errs in finding independent claim 1 to be obvious in view of the cited references. Appellant presents similar arguments for the remaining claims. *See* Appeal Br. 7–9. Accordingly, we sustain the Examiner’s obviousness rejection of claims 1 and 5–15 for the reasons discussed above.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Basis/Reference(s)	Affirmed	Reversed
1, 5, 12–15	103(a)	Harris167, Saynac, Harris407, Furumoto, East	1, 5, 12–15	
6–10	103(a)	Harris167, Saynac, Harris407, Furumoto, East, Harris400	6–10	
11	103(a)	Harris167, Saynac, Harris407, Furumoto, East, Harris400, Cooperstock	11	
Overall Outcome			1, 5–15	

TIME PERIOD FOR RESPONSE

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

AFFIRMED