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Harrington & Smith, Attorneys At Law, LLC
4 Research Drive, Suite 202
Shelton, CT 06484

EXAMINER	
MATHEWS, CRYSTAL	

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANTERO TOSSAVAINEN, VESA KAJANUS, and PETRI SORONEN

Appeal 2018-001397
Application 13/880,439
Technology Center 2600

Before JEREMY J. CURCURI, BARBARA A. BENOIT, and AARON W. MOORE, *Administrative Patent Judges*.

CURCURI, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 38–42, 44–54, and 56–64. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[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 Nokia Technologies Oy. Appeal Br. 1.

CLAIMED SUBJECT MATTER

The claims are directed to a "display apparatus providing speaker functionality for use in mobile devices." Spec. 1:6–7. Claim 38, reproduced below with the key limitation emphasized, is illustrative of the claimed subject matter:

> 38. An apparatus comprising:
>
> a first part configured to form at least part of a case of the apparatus;
>
> a second part configured to form at least part of a display for the apparatus;
>
> a coupling configured to couple the first part to the second part; and
>
> at least two actuators coupled to the second part and configured to apply a force to the second part to generate a displacement of the second part, wherein the apparatus is configured to:
>
> in a first mode of operation, *operate the at least two actuators to generate a translational displacement of the second part relative to the first part* to provide a first acoustic amplitude of sound from the translational displacement of the second part; and
>
> in a second mode of operation, operate at least one of the at least two actuators to generate a non-translational displacement of the second part relative to the first part to provide a second acoustic amplitude of sound from the non-translational displacement of the second part which is less than the first acoustic amplitude of sound.

REFERENCES

The prior art relied upon by the Examiner is:

Name	Reference	Date
Shiga	US 2006/0022958 A1	Feb. 2, 2006
Burrough	US 2010/0156818 A1	June 24, 2010
Hatanaka	US 2011/0003124 A1	Jan. 6, 2011

REJECTIONS

Claims 38, 40–42, 44, 52–54, and 58–64 are rejected under pre-AIA 35 U.S.C. § 103(a) as obvious over Burrough. Final Act. 3–11.

Claim 39 is rejected under pre-AIA 35 U.S.C. § 103(a) as obvious over Burrough and Hatanaka. Final Act. 12–13.

Claims 45–51, 56, and 57 are rejected under pre-AIA 35 U.S.C. § 103(a) as obvious over Burrough and Shiga. Final Act. 13–17.

OPINION

The Obviousness Rejection of Claims 38, 40–42, 44, 52–54, and 58–64 over Burrough

The Examiner finds Burrough suggests all limitations of claim 38. Final Act. 3–6. In particular, the Examiner finds Burrough discloses providing the same haptic profile to at least two different haptic actuators to form a compound haptic effect (Burrough, Figure 1D, haptic actuators 136, 140, protective layer 120, $H_{compound}$), and that such disclosure suggests the key limitation. Final Act. 4 (citing Burrough ¶ 49); *see also* Final Act. 2–3 (citing Burrough ¶ 53) ("The first amplitude occurs when the protective layer is moved as a single unitary member, resulting from the $H_{[compound]}$ haptic effects applied to both actuators."), Final Act. 5–6 (citing Burrough ¶¶ 49, 53) ("[O]ne of ordinary skill in the art at the time of the invention would have known how to modify the haptic profiles applied to the actuators within Burroughs's device to achieve 'translational displacement.'"), and Ans. 12–17.

Appellant argues, among other arguments, that Burrough does not describe the key limitation. *See* Appeal Br. 5–13. For example, Appellant presents the following arguments:

> [T]he combination of H_1 and H_2 as seen in Fig. 1D increases the quantity of displacement at the particular location "A" shown, **but not the entire layer 120.** "A", "B" and "C" shown [in Figure 1D of Burrough] will all have different displacements and, thus, there is no translational planar motion displacement disclosed or suggested. Fig. 2A clearly shows limited localized effects for each actuator as shown by the circles around each actuator and including showing **non-translational effects,** such as "silent areas" versus the other areas.

Appeal Br. 8. "A member can be 'unitary' and still bend for example. There is no disclosure or suggestion that an entire unit 120 moves in unison to provide translation of the entire unit 120 as the examiner has stated." Appeal Br. 10; *see also* Reply Br. 1–12;

In light of Appellant's arguments, we determine the Examiner erred in finding Burrough suggests the following key limitation of claim 38: "operate the at least two actuators to generate a translational displacement of the second part relative to the first part."

The claim language requires *translational displacement* of the second part relative to the first part. That is, the second part must undergo *translational displacement*.

Appellant's Specification discloses the following:

> With respect to figure 10 an example of the motion of the window plate 303/display assembly 304 is shown when a

> symmetrical pairing of the piezoelectric actuators 305a and 305b are driven simultaneously or substantially in parallel. The force produced by the first piezoelectric actuator 305a is shown by the first force arrow 1001a and the force produced by the second piezoelectric actuator 305b is shown by the second force arrow 1001b. As can be seen when both of the piezoelectric actuators 305a and 305b are operating in parallel using substantially the same drive current to produce substantially the same magnitude force at substantially the same time *the window plate 303/display assembly 304 moves in a plane substantially perpendicular to the plane described or defined by the window plate 303/display assembly 304*. In other words *the window plate 303/display assembly 304 moves in such a way that it is a substantially a linear translation in the dimension perpendicular into and out of the apparatus can* (in other words the 'z' direction as compared to the 'x' and 'y' directions which define the display assembly). The movement of the window plate 303/display assembly 304 can be shown by the dashed lines 1101.

Spec. 27:6–21 (emphasis added). Thus, the Specification describes *translational displacement* of the window plate/display assembly as linear movement into and out of the apparatus can as depicted in Appellant's Figure 10.

Appellant's Specification further discloses the following:

> With respect to figure 11 a further example of the operation of such embodiments of the application as described herein is described shown in further detail. In such an example the window plate 303/display assembly 304 is subject to the force or moment produced by only the second piezoelectric actuator 305b as shown by the force arrow 1001b. In such an example *the motion of the window plate 303/display assembly 304 is such that the window plate 303/display assembly 304 effectively pivots about the point of sealing between the frame part 301 and the body part 311*. The pivoting action is shown in figure 11 by the dashed lines 1201. As described herein the motion of the display can be configured to drive an air mass in order that it produces an acoustic signal. However in such embodiments the acoustic

> wave is generated such that the majority of the acoustic wave occurs around the area of the second piezoelectric actuator 305b.

Spec. 28:11–24 (emphasis added). Thus, the Specification describes *non-translational displacement* of the window plate/display assembly as pivoting movement as depicted in Appellant's Figure 11.

In light of Appellant's Specification, we interpret "translational displacement" as being distinct from "non-translational displacement" and thus requiring the *entirety* of the second part (displaced structure) to undergo *translational displacement*, thereby avoiding any pivoting movements (non-translational displacement) of any portions of the second part.

Burrough discloses the following:

> In some cases as shown in FIG. 1D, a compound haptic effect $H_{compound}$ can be generated by providing the same or different haptic profiles to at least two different haptic actuators which interfere with each other (either constructively or destructively) to form compound haptic effect $H_{compound}$.

Burrough ¶ 49 (emphasis omitted).

Burrough further discloses the following:

> Generally speaking, substantially all of protective layer 120 can be provided with haptic sensations as a single unitary member, however, it is possible to provide for individually-moving portions of protective layer 120 by providing each portion with their own haptic actuator where the haptic responses can be limited to particular region of surface 126 with effective range R as shown in FIG. 2A.

Burrough ¶ 53.

Thus, Burrough discloses operating at least two haptic actuators with the same haptic profiles and providing haptic sensations to protective layer 120 as a single unitary member. Nonetheless, these disclosures in Burrough do not require the protective layer 120 to, in its entirety, undergo translational displacement; rather, these disclosures suggest bending of protective layer 120. Put another way, Burrough discloses providing a haptic sensation to part or all of protective layer 120, but when the haptic sensation is provided to all of protective layer 120, Burrough suggests bending of protective layer 120 rather than translational displacement of the protective layer 120 in its entirety.

In summary, because we conclude the key limitation of claim 38 requires *translational displacement* of the second part relative to the first part, and we interpret the "translational displacement" as requiring the *entirety* of the second part to undergo *translational displacement*, thereby avoiding any pivoting movements (non-translational displacement) of any portions of the second part, we find Burrough does not suggest the key limitation of claim 38. At best, Burrough describes non-translational displacement of protective layer 120 because Burrough suggests bending of protective layer 120, which we interpret as non-translational displacement because such bending corresponds to pivoting movements.

We, therefore, do not sustain the Examiner's rejection of claim 38. We also do not sustain the Examiner's rejection of claims 40–42, 44, 52, 53, 58, 59, 61, and 62, which depend from claim 38.

Independent claim 54 recites "operating the at least two actuators to generate a translational displacement of the second part relative to the first part," which is essentially the same as the key limitation of claim 38. We, therefore, also do not sustain the Examiner's rejection of claim 54. We also do not sustain the Examiner's rejection of claims 63 and 64, which depend from claim 54.

Independent claim 60 recites "controlling at least two actuators to, in a first mode, generate a translational displacement of a second part relative to a first part," which is essentially the same as the key limitation of claim 38. We, therefore, also do not sustain the Examiner's rejection of claim 60.

The Obviousness Rejection of Claim 39 over Burrough and Hatanaka

The Examiner does not find Hatanaka cures the deficiency of Burrough. *See* Final Act. 12–13.

We, therefore, also do not sustain the Examiner's rejection of claim 39.

The Obviousness Rejection of Claims 45–51, 56, and 57 over Burrough and Shiga

The Examiner does not find Shiga cures the deficiency of Burrough. *See* Final Act. 13–17.

We, therefore, also do not sustain the Examiner's rejection of claims 45–51, 56, and 57.

CONCLUSION

The Examiner's decision to reject claims 38–42, 44–54, and 56–64 is reversed.

DECISION SUMMARY

In summary:

Claims Rejected	**35 U.S.C. §**	**Reference(s)/Basis**	**Affirmed**	**Reversed**
38, 40–42, 44, 52–54, 58–64	103(a)	Burrough		38, 40–42, 44, 52–54, 58–64

39	103(a)	Burrough, Hatanaka		39
45–51, 56, 57	103(a)	Burrough, Shiga		45–51, 56, 57
Overall Outcome				38–42, 44–54, 56–64

REVERSED