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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PETER L. SAAL and SCOTT E. LININGER

Appeal 2015-006483
Application 13/799,503
Technology Center 2600

Before MAHSHID D. SAADAT, CATHERINE SHIANG, and
STEVEN M. AMUNDSON, *Administrative Patent Judges*.

AMUNDSON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ seek our review under 35 U.S.C. § 134(a) from a final rejection of claims 1–5, i.e., all pending claims. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

¹ According to Appellants, the real party in interest is Trimble Navigation Limited. App. Br. 1.

STATEMENT OF THE CASE

The Invention

According to the Specification, the invention relates “generally to parametric three-dimensional object modeling and more particularly to computer implemented methods and systems for creating parametric three-dimensional design and model data that can be used in various design application environments.” Spec. ¶ 3.² One embodiment of the invention includes a processor “running a software program operable to configure the object by defining a zone comprising a root of a tree hierarchy, the zone having a three-dimensional region defining an outer dimension of the object to be modeled” Abstract.

Exemplary Claim

Independent claim 1 exemplifies the subject matter of the claims under consideration and reads as follows, with italics identifying the limitations at issue in claim 1:

1. A system for representing a three-dimensional object comprising:
 - a computer processor for processing parameters of the three-dimensional object;
 - a first element representing in at least one storage medium accessible to the computer processor a region that

² This decision uses the following abbreviations: “Spec.” for the Specification, filed March 13, 2013; “Non-Final Act.” for the Non-Final Office Action, mailed May 8, 2014; “Response” for the Response to Office Action, filed August 7, 2014; “Final Act.” for the Final Office Action, mailed September 15, 2014; “App. Br.” for the Appeal Brief, filed December 22, 2014; “Ans.” for the Examiner’s Answer, mailed April 17, 2015; and “Reply Br.” for the Reply Brief, filed June 17, 2015.

contains the three-dimensional object, *said region comprising a root of a tree hierarchy*;

a second element in the at least one storage medium accessible to the computer processor representing a dimension of a component of the three-dimensional object, said second element comprising a three-dimensional boxed area defining an outer dimension of the three-dimensional object to be modeled, said region defining a size, location and rotation in space of said three-dimensional object to be modeled;

a third element in the at least one storage medium accessible to the computer processor representing a first variable associated with the region and a second variable associated with the component; and

a graphical user interface in communication with the computer processor for displaying a representation of the three-dimensional object based on the first, second, and third elements retrieved by the computer processor.

App. Br. 10 (Claims App.).

The Prior Art Supporting the Rejection on Appeal

Seidl	US 5,583,977	Dec. 10, 1996
Fuki	US 2001/0055013 A1	Dec. 27, 2001
Haller et al. (“Haller”)	US 2002/0107673 A1	Aug. 8, 2002

The Rejection on Appeal

Claims 1–5 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Fuki, Haller, and Seidl. Final Act. 2–7; App. Br. 4.

ANALYSIS

We have reviewed the rejection of claims 1–5 in light of Appellants’ arguments that the Examiner erred. For the reasons explained below, we disagree with Appellants’ assertions regarding error by the Examiner.

The Rejection of Claim 1 Under 35 U.S.C. § 103(a)

“A FIRST ELEMENT REPRESENTING . . . A REGION . . .
SAID REGION COMPRISING A ROOT OF A TREE HIERARCHY”

The Examiner finds that Fuki discloses “a first element representing in at least one storage medium accessible to the computer processor a region that contains the three-dimensional object” according to claim 1. Final Act. 2–3; *see* Non-Final Act. 3. In addition, the Examiner finds that Haller discloses a “region comprising a root of a tree hierarchy” according to claim 1. Final Act. 4, 8–9; Ans. 2; *see* Non-Final Act. 4.

Appellants argue that “Fuki in view of Haller fails to teach or suggest” the “first element” recited in claim 1. App. Br. 6; Reply Br. 2. But Appellants provide no explanation regarding Fuki’s alleged failure and identify no distinctions between Fuki and the “first element” recited in claim 1. App. Br. 6–8; Reply Br. 1–5. As for Haller, Appellants assert that “any so-called hierarchy of Haller is not of ‘an object to be modeled,’ as claimed.” Reply Br. 1.

Appellants’ assertion conflicts with Haller’s disclosure. In particular, as found by the Examiner, Haller teaches that “[h]ierarchical data structures can be used to represent solid models as combinations of components such as geometry, topology, operations, transformations, assemblies, subassemblies, parts, and other model data.” *See* Ans. 2, 4 (citing Haller ¶ 42). Additionally, Haller Figure 3 “shows a hierarchical data structure known as a tree” that “includes nodes 301-312 arranged in parent-child relationships that identify model components and express relationships between modeled components.” Haller ¶ 42, Fig. 3. Haller teaches that “[a] modeled object may be represented by a root node 301 and nodes

302-312 connected to the root node 301.” *Id.* ¶ 42. Hence, we are not persuaded by Appellants’ assertion that Haller’s hierarchical tree data structure does not correspond to “an object to be modeled.”

“A SECOND ELEMENT . . . REPRESENTING A DIMENSION OF A COMPONENT”

Appellants contend that “Fuki in view of Haller fails to teach or suggest” the “second element” recited in claim 1. App. Br. 6; Reply Br. 2. The Examiner, however, does not rely on Fuki in view of Haller for that limitation. The Examiner relies instead on the combination of Fuki and Seidl. Final Act. 2–3, 5; *see* Non-Final Act. 3, 5–6.

Appellants next contend that Seidl fails to teach or suggest the “second element” recited in claim 1. App. Br. 6–7; Reply Br. 3–4. More specifically, Appellants assert that Seidl “fails to show any sort of [‘]a size, location and rotation in space of said three-dimensional object to be modeled,’ as claimed.” App. Br. 7; Reply Br. 4.

Appellants do not, however, address the Examiner’s findings. In particular, the Examiner finds that Seidl discloses a bounding box that completely surrounds an object to be modeled, such as a chair. Final Act. 9; Ans. 3; *see* Seidl 6:17–31, 7:27–50, Figs. 3–4. The Examiner also finds that Seidl discloses active zones associated with the bounding box and used for object manipulations, e.g., rotations, translations along planes, and scaling. Final Act. 9–10; Ans. 3; *see* Seidl 6:17–21, 7:6–22, 7:27–50. As the Examiner notes, Seidl explains that a pointer changing to arrows having different appearances could denote different object manipulations, e.g., curved arrows corresponding rotations and crossed arrows corresponding to translations along planes. Final Act. 9–10; Ans. 3; *see* Seidl 7:6–17.

Contrary to Appellants' assertion, Seidl shows "a size, location and rotation in space of said three-dimensional object to be modeled" as claimed.

Appellants contend that Seidl's bounding box provides only a visual cue that an object has been selected and cannot define an outer dimension of the object. App. Br. 7; Reply Br. 4; *see* Seidl 6:36–38. Based on the Examiner's findings addressed above, Seidl explains that a user may scale the object inside the bounding box, i.e., make it larger or smaller. Seidl 6:17–21, 7:6–17, 7:45–50. By surrounding the object and changing size when scaling the object, Seidl's bounding box defines an outer dimension of the object as required by claim 1.

Appellants also contend that Seidl's bounding box "is not at a 'root' level, as claimed." App. Br. 7; Reply Br. 4. But the Examiner finds that Haller, not Seidl, discloses a "region comprising a root of a tree hierarchy" according to claim 1. Final Act. 4 (citing Haller ¶ 42), 8–9 (quoting Haller ¶ 42); Ans. 2 (quoting Haller ¶ 42). We are not persuaded by Appellants' contention concerning Seidl's bounding box. Where a rejection rests on a combination of references, an appellant cannot establish nonobviousness by attacking the references individually. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986).

APPELLANTS' ARGUMENT REGARDING DIFFERENCES

Appellants argue that the "Office Action fails to explain why the differences between Fuki, Haller, Siedl [sic] and Appellants' invention would have been obvious to one of ordinary skill in the art." App. Br. 7–8; Reply Br. 4. But an obviousness analysis requires an evaluation whether "the subject matter as a whole would have been obvious," not the differences between the claimed subject matter and the prior art. *See* 35 U.S.C.

§ 103(a). Here, the Examiner relies on the combination of disclosures in Fuki, Haller, and Seidl and explains why the combination establishes that “the subject matter as a whole would have been obvious.” Non-Final Act. 3–6; Final Act. 2–6; *see* Ans. 2–3.³

SUMMARY FOR CLAIM 1

For the reasons discussed above, Appellants’ arguments have not persuaded us that the Examiner erred in rejecting claim 1 for obviousness based on Fuki, Haller, and Seidl. Hence, we sustain the obviousness rejection.

The Rejection of Claims 2–5 Under 35 U.S.C. § 103(a)

Claims 2–5 depend from claim 1. App. Br. 10–11 (Claims App.). Appellants do not present any separate patentability arguments for any dependent claims. App. Br. 4–9; Reply Br. 1–5. Because Appellants do not argue the dependent claims separately, we sustain the obviousness rejection of the dependent claims for the reasons applicable to independent claim 1. *See* 37 C.F.R. § 41.37(c)(1)(iv).

³ Appellants assert that the Examiner failed at various times to respond to arguments made by Appellants. App. Br. 4–5; *see* Response 5–6; Reply Br. 1–2. In the Final Office Action, however, the Examiner expressly responded to arguments made by Appellants. *See* Final Act. 7–10. In addition, in both the Non-Final Office Action and the Final Office Action, the Examiner applied the claim language to the references and provided paragraph and/or page-and-line citations to the particular portions of the references used for the obviousness rejection. Non-Final Act. 3–7; Final Act. 2–7. The Examiner’s specific citations “would have put any reasonable applicant on notice of the examiner’s rejection.” *See In re Jung*, 637 F.3d 1356, 1362 (Fed. Cir. 2011). Appellants do not contend that either Office Action was “so uninformative that it prevent[ed] the applicant[s] from recognizing and seeking to counter the grounds for rejection.” *See Chester v. Miller*, 906 F.2d 1574, 1578 (Fed. Cir. 1990).

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DECISION

We affirm the Examiner's decision to reject claims 1–5.

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