



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

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
13/033,708 02/24/2011 Peter Philip Lonsdale Nanson 2010P25956 US 9429

45113 7590 08/29/2016
Siemens Corporation
Intellectual Property Department
3501 Quadrangle Blvd Ste 230
Orlando, FL 32817

Table with 1 column: EXAMINER

PIERRE LOUIS, ANDRE

Table with 2 columns: ART UNIT, PAPER NUMBER

2123

Table with 2 columns: NOTIFICATION DATE, DELIVERY MODE

08/29/2016

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):

IPDadmin.us@siemens.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PETER PHILIP LONSDALE NANSON,
RICHARD CHARLES COLLINS, and
MARK DAVID WILLIAM HARMAN

Appeal 2015-002676¹
Application 13/033,708
Technology Center 2100

Before ALLEN R. MacDONALD, JOHN P. PINKERTON, and
GARTH D. BAER, *Administrative Patent Judges*.

BAER, *Administrative Patent Judge*.

DECISION ON APPEAL

¹ Appellants identify Siemens Product Lifecycle Management Software, Inc. as the real party in interest. Appeal Br. 4.

STATEMENT OF THE CASE

This is a decision on appeal, under 35 U.S.C. § 134(a), from the Examiner's Final Rejection of claims 1–21, which are all the pending claims. Appeal Br. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

BACKGROUND

A. The Invention

Appellants' invention is directed to “systems and methods for performing a deformation of the surfaces of a specified subset of faces in a [boundary representation (B-rep)] model.” Spec. ¶ 19. Independent claim 1 is representative and reproduced below, with emphasis added to the disputed elements:

1. A method, performed by a CAD data processing system, comprising:

(a) selecting a first plurality of points on an original surface of a three-dimensional (3D) model;

(b) producing a first plurality of deformed points corresponding to the first plurality of points;

(c) creating a first deformed surface from the first plurality of deformed points;

(d) selecting a second plurality of points on the original surface of the model;

(e) producing a second plurality of deformed points corresponding to the second plurality of points;

(f) modifying the first deformed surface according to the second plurality of deformed points, including matching the first deformed surface to other deformed features of the model;
and

(g) storing the deformed surface as part of a deformed model.

Appeal Br. 56 (Claims App.).

B. The Rejection on Appeal

The Examiner rejects claims 1–21 under 35 U.S.C. § 102(b) as anticipated by Lee (US 2007/0176923 A1; publ. Aug. 2, 2007).

ANALYSIS

A. Claims 1, 8, and 15

Appellants argue that Lee fails to disclose “producing a first plurality of deformed points corresponding to the first plurality of points,” as recited in independent claims 1, 8, and 15. Appeal Br. 17; Reply Br. 9–12. Specifically, Appellants argue that paragraph 218 of Lee merely teaches modifying markers on a surface of an object and constructing a profile curve for a surface of an object based on the markers, but fails to teach producing a first plurality of deformed points corresponding to (and therefore different from) the first plurality of points. Appeal Br. 17; Reply Br. 12.

We do not find this argument persuasive. We agree with the Examiner that paragraph 218 of Lee teaches creating a profile curve on a surface of an object by placing markers at various points on the surface, and thus, Lee’s markers teach the claimed “first plurality of points.” Ans. 2 (citing Lee ¶ 218). We disagree with Appellants that the claims require that the “first plurality of deformed points” be distinct from the “first plurality of points,” and, thus, we agree with the Examiner that Lee’s markers further teach the claimed “first plurality of deformed points.” Moreover, even if we agreed with Appellants that the claims require that the “first plurality of deformed points” be distinct from the “first plurality of points,” we further

agree with the Examiner that Lee also teaches selecting and modifying the markers of the surface. Final Act. 3–4 (citing Lee ¶ 218). Thus, we agree with the Examiner that Lee’s modified markers, which are distinct from the original markers, also teach the claimed “first plurality of deformed points.” Final Act. 3–4.

Appellants also argue that Lee fails to disclose “creating a first deformed surface from the first plurality of deformed points,” as recited in independent claims 1, 8, and 15. Appeal Br. 17–19; Reply Br. 14–16. Specifically, Appellants argue that paragraphs 218, 256, and 143 of Lee fail to teach “creating a deformed surface [of the object] from a ‘first plurality of points’ that correspond to but [are] different from the ‘markers.’” Appeal Br. 18–19; Reply Br. 15–16.

We also do not find this argument persuasive. Appellants’ arguments are based on the contention that the claims require that the “first plurality of deformed points” be distinct from the “first plurality of points.” As previously described, we disagree with Appellants that the claims require that the “first plurality of deformed points” be distinct from the “first plurality of points,” and, thus, we agree with the Examiner that Lee’s markers teach the claimed “first plurality of deformed points.” Once again, even if we agreed with Appellants that the claims require the “first plurality of deformed points” be distinct from the “first plurality of points,” we further agree with the Examiner that Lee teaches modifying the markers of the surface of the object (i.e., creating a distinct “plurality of deformed points”), and further teaches modifying the surface of the object to reflect the modified markers (i.e., creating a “deformed surface from the first plurality of deformed points”). Final Act. 4; Ans. 2 (citing Lee ¶¶ 218, 256).

Appellants also argue that Lee fails to disclose “selecting a second plurality of points on the original surface of the model,” and “producing a second plurality of deformed points corresponding to the second plurality of points,” as recited in independent claims 1, 8, and 15. Appeal Br. 19–20; Reply Br. 17–18. Specifically, Appellants argue that even if Lee’s additional markers can be considered a “second plurality of points,” they are not points on the original surface of the model, and thus, Lee fails to teach “a second plurality of points on the original surface of the model.” Appeal Br. 20. Appellants further argue that Lee’s continuous deforming of a profile curve also fails to teach a selection of “a second plurality of points on the original surface of the model.” Reply Br. 18.

We also do not find this argument persuasive. We agree with the Examiner that Lee teaches adding additional markers to a surface of the object. Final Act. 4; Ans. 2 (citing Lee ¶ 218). Lee further describes that the additional markers include markers added on an additional profile, where the additional profile corresponds to a non-deformed (i.e., original) surface of the object. *See* Lee ¶ 218. Thus, we agree with the Examiner that Lee’s selection of additional markers teaches “selecting a second plurality of points on the original surface of the model.” Final Act. 4; Ans. 2–3.

Appellants also argue that Lee fails to disclose “modifying the first deformed surface according to the second plurality of deformed points, including matching the first deformed surface to other deformed features of the model,” as recited in independent claims 1, 8, and 15. Appeal Br. 20–21; Reply Br. 20–22. Specifically, Appellants argue that the Final Office Action merely attempts to show a similar result as the claimed process, but fails to show the claim limitations themselves. Appeal Br. 21; Reply Br. 22.

We also do not find this argument persuasive. Contrary to Appellants' contention, the Examiner has established that Lee teaches the aforementioned claim limitations. More specifically, we agree with the Examiner that paragraph 218 of Lee discloses modifying a surface of an object according to a plurality of deformed points, and paragraph 40 of Lee discloses modifying a surface of an object according to a distinct plurality of deformed points associated with another surface of the object. Final Act. 4; Ans. 3 (citing Lee ¶¶ 40, 218). Thus, we agree that Lee teaches "modifying the first deformed surface according to the second plurality of deformed points." We further agree with the Examiner that paragraph 41 of Lee discloses matching a deformation of a child object according to a deformation of a parent object. Final Act. 4; Ans. 3 (citing Lee ¶ 41). Thus, we also agree Lee teaches "matching the first deformed surface to other deformed features of the model."

Accordingly, we sustain the Examiner's rejection of independent claims 1, 8, and 15.

B. Claims 2, 9, and 16

Appellants argue that Lee fails to disclose "wherein the CAD data processing system also performs a tolerance determination between the first deformed surface and the second plurality of deformed points," as recited in claims 2 and 9, and similarly recited in claim 16. Appeal Br. 22–23; Reply Br. 23–24. Specifically, Appellants argue that Lee merely mentions tolerances and fails to teach performing a tolerance determination between a deformed surface and a plurality of deformed points. Appeal Br. 22–23; Reply Br. 24.

We do not find this argument persuasive. We agree with the Examiner that Lee teaches the aforementioned claim limitation because paragraph 248 of Lee teaches providing additional markers (i.e., a “second plurality of deformed points”) to tie a profile to a surface (i.e., a “first deformed surface”) within a predefined tolerance (i.e., “performs a tolerance determination”). Ans. 3–4 (citing Lee ¶ 248). Accordingly, we sustain the Examiner’s rejection of claims 2, 9, and 16.

C. Claims 3, 10, and 17

Appellants argue that Lee fails to disclose “wherein modifying the first deformed surface is performed according to one or more of the second plurality of deformed points that are out of tolerance with respect to the first deformed surface,” as recited in claims 3, 10, and 17. Appeal Br. 23–24; Reply Br. 25–26. Specifically, Appellants argue that nothing in paragraph 248 of Lee, or any other portion of Lee, teaches or suggests anything related to modifying the first deformed surface according to one or more of the second plurality of deformed points that are out of tolerance with respect to the first deformed surface. Appeal Br. 23–24; Reply Br. 25–26.

We do not find this argument persuasive. As previously described, we agree with the Examiner that paragraph 248 of Lee teaches performing a tolerance determination between a plurality of markers and a deformed surface. Ans. 4 (citing Lee ¶ 248). We further agree with the Examiner that paragraph 218 of Lee teaches continually modifying a surface of an object based on the placement of additional markers and/or the modification of positions of the markers. Ans. 4 (citing Lee ¶ 218). By definition, this involves modifying the surface according to a plurality of markers that are

out of tolerance with respect to the surface. Accordingly, we sustain the Examiner's rejection of claims 3, 10, and 17.

D. Claims 4, 11, and 18

Appellants argue that Lee fails to disclose "wherein steps (d)-(g) are repeated for additional points on the original surface until all deformed points are within a predetermined tolerance of the deformed surface," as recited in claims 4, 11, and 18. Appeal Br. 24–25; Reply Br. 27–28. Specifically, Appellants argue that nothing in paragraphs 218 and 248 of Lee, or any other portion of Lee, teaches or suggests an iterative process of selecting additional points on an original surface of the model, producing corresponding additional deformed points, and modifying the deformed surface according to the additional deformed points until all deformed points are within a predetermined tolerance. Appeal Br. 24–25; Reply Br. 28.

We do not find this argument persuasive. We agree with the Examiner that paragraph 218 of Lee teaches that the creation of a profile curve (including markers) on a surface, the modification of the markers, and the deformation of the surface based on the modification of the profile curve, are each repeated until a desired shape is obtained (i.e., all deformed points are within a predetermined tolerance). Final Act. 5 (citing Lee ¶ 218). We further agree with the Examiner that Lee's paragraphs 32, 185, and 225 teach an iterative process of deforming a surface based on a modification of markers. Ans. 4 (citing Lee ¶¶ 32, 185, 225). Accordingly, we sustain the Examiner's rejection of claims 4, 11, and 18.

E. Claims 5, 12, and 19

Appellants argue that Lee fails to disclose “wherein the other deformed features include at least one of faces to which other modeling operations are applied, smooth edges, dependent blends, and offsets of the model,” as recited in claims 5, 12, and 19. Appeal Br. 25–26; Reply Br. 29–30. Specifically, Appellants argue that Lee merely mentions the possibility of smoothing or blending a surface, and fails to teach or suggest the aforementioned claim limitation. Appeal Br. 26; Reply Br. 30.

We do not find this argument persuasive. We agree with the Examiner that Lee teaches deformed features of an object including a smooth edge and a dependent blend, as paragraph 329 of Lee teaches that the CAD system performs smoothing of edges, and paragraph 101 of Lee teaches that the CAD system performs blending of surface. Ans. 5 (citing Lee ¶¶ 101, 329). Accordingly, we sustain the Examiner’s rejection of claims 5, 12, and 19.

F. Claims 6, 13, and 20

Appellants argue that Lee fails to disclose “wherein the CAD data processing system receives a command to deform the original surface,” as recited in claims 6 and 13, and similarly recited in claim 20. Appeal Br. 27. Specifically, Appellants argue that paragraph 39 of Lee does not teach or suggest that the computer-aided design (CAD) system receives a command to deform an original surface. *Id.*

We do not find this argument persuasive. We agree with the Examiner that paragraph 31 of Lee teaches that the CAD system performs a real-time deformation of a surface of an object in response to receiving

object-modifying input from a user. Ans. 5 (citing Lee ¶ 31). Thus, the CAD system interprets the received object-modifying input as a command to deform the surface, and thus, we agree with the Examiner that Lee teaches “wherein the CAD data processing system receives a command to deform the original surface.” *Id.* Accordingly, we sustain the Examiner’s rejection of claims 6, 13, and 20.

G. Claims 7, 14, and 21

Appellants argue that Lee fails to disclose “wherein the first plurality of points are evenly distributed on the first surface, and the second plurality of points are distributed between the first plurality of points,” as recited in claims 7, 14, and 21. Appeal Br. 28–29; Reply Br. 32–35. Specifically, Appellants argue that the cited paragraphs and figures of Lee fail to teach or suggest that a first plurality of points are evenly distributed on a first surface, and that a second plurality of points are distributed between the first plurality of points. Appeal Br. 28–29; Reply Br. 33–35.

We do not find this argument persuasive. We agree with the Examiner that Figures 42A and 42B of Lee teach a first plurality of points that are evenly distributed on a first surface, as both figures illustrate two points distributed on a surface, and, by definition, any distribution of two points on a surface is an even distribution. Ans. 5–6 (citing Lee Figs. 42A, 42B). We further agree with the Examiner that Figure 20 teaches a second plurality of points distributed between a first plurality of points, as the figure illustrates two points indicated as $(0, v_0)$ distributed between two points indicated as (u, v_0) . Ans. 6 (citing Lee Fig. 20). Thus, we agree with the Examiner that Lee teaches “wherein the first plurality of points are evenly

distributed on the first surface, and the second plurality of points are distributed between the first plurality of points.” Accordingly, we sustain the Examiner’s rejection of claims 7, 14, and 21.

DECISION

We affirm the Examiner’s rejection of claims 1–21 under 35 U.S.C. § 102(b).²

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

² Subsequent to the Examiner’s Final Action, the Supreme Court in *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347 (2014) set forth a two-part test to determine compliance of a claim with 35 U.S.C. § 101. The Court held that a mere instruction to implement an abstract idea on a computer cannot impart patent eligibility. 134 S. Ct. at 2357–59. Should there be further prosecution of this application, we suggest that the Examiner re-review all pending claims in light of the Court’s *Alice* decision and any subsequent agency guidance.