UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIGN TECHNOLOGY, INC.
Petitioner,

v.

3SHAPE A/S,
Patent Owner.

Case IPR2018-00197
Patent 9,329,675 B2

Before ELENI MANTIS MERCADER, MICHELLE N. WORMMEESTER, and JESSICA C. KAISER, *Administrative Patent Judges*.

MANTIS MERCADER, *Administrative Patent Judge*.

FINAL WRITTEN DECISION
35 U.S.C. § 318(a)

I. INTRODUCTION

A. Background

Align Technology, Inc. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–19 of U.S. Patent No. 9,329,675 B2 (Ex. 1001, "the '675 patent"). Paper 2 ("Pet."). 3Shape A/S ("Patent Owner") filed a Preliminary Response. Paper 5 ("Prelim. Resp.").

Upon consideration of the Petition, the Preliminary Response, and the associated evidence, we instituted trial to determine whether claims 1, 2, 9–11, and 18 are anticipated under 35 U.S.C. § 102 by Kriveshko,[1] whether claims 1–5, 8–11, and 14–19 would have been obvious under 35 U.S.C. § 103 over Kriveshko in combination with Serra,[2] and whether claims 6, 7, 12, and 13 would have been obvious under 35 U.S.C. § 103 over Kriveshko in combination with Serra and Brennan.[3] *See* Paper 7, 6, 31 ("Institution Decision" or "Inst. Dec."). After institution of trial, Patent Owner filed a Patent Owner Response. Paper 11 ("PO Resp."). Petitioner replied. Paper 14 ("Pet. Reply").

An oral hearing was conducted on February 4, 2019. A transcript of that hearing is entered in the record. *See* Paper 21 ("Tr.").

We have jurisdiction under 35 U.S.C. § 6. This decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of claims 1–19 of the '675 patent. For the reasons discussed below, we hold that Petitioner has demonstrated by a preponderance of the evidence that claims 1–19 of the '675 patent are unpatentable.

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[1] US 2007/0171220 A1 (July 26, 2007) ("Kriveshko"; Ex. 1005).
[2] US 2006/0020204 A1 (Jan. 26, 2006) ("Serra"; Ex. 1006).
[3] US 8,903,476 B2 (Dec. 2, 2014) ("Brennan"; Ex. 1007).

B. Related Matters

The parties identify *inter partes* review proceeding IPR2018-00198 that also challenges the '675 patent. Pet. 55, Paper 4, 1. Patent Owner further submits that the following is a list of judicial and administrative matters that would affect, or be affected by, a decision in this proceeding: *Align Technology, Inc. v. 3Shape A/S*, Petition for *Inter Partes* Review of U.S. Patent No. 9,329,675 B2, filed on November 22, 2017; U.S. Provisional Application No. 61/420,138, filed on December 6, 2010; and PCT International Application No. PCT/DK2011/050461, filed on December 5, 2011. Paper 4, 1.

Petitioner states that the '675 patent has not been involved in any litigation proceedings. Pet. 55.

C. The '675 Patent

The '675 patent relates to handheld intraoral scanner device 100 and computer screen 101. Ex. 1001, Fig. 1, 11:29–31. Operator 102 uses the intraoral scanner 100 to record some intraoral 3D geometry and the user interface functionality to rotate, pan, and zoom displayed 3D model 105 of the scanned data on computer screen 101. *Id.* at 11:31–37. The integration of the user interface functionality in device 100 is provided by motion sensors (not visible), which can be accelerometers inside scanner 100, whose readings determine the orientation of 3D model 105 of the teeth acquired by scanner 100 on computer screen 101. *Id.* at 11:37–42. Figure 1 of the '675 patent is reproduced below.

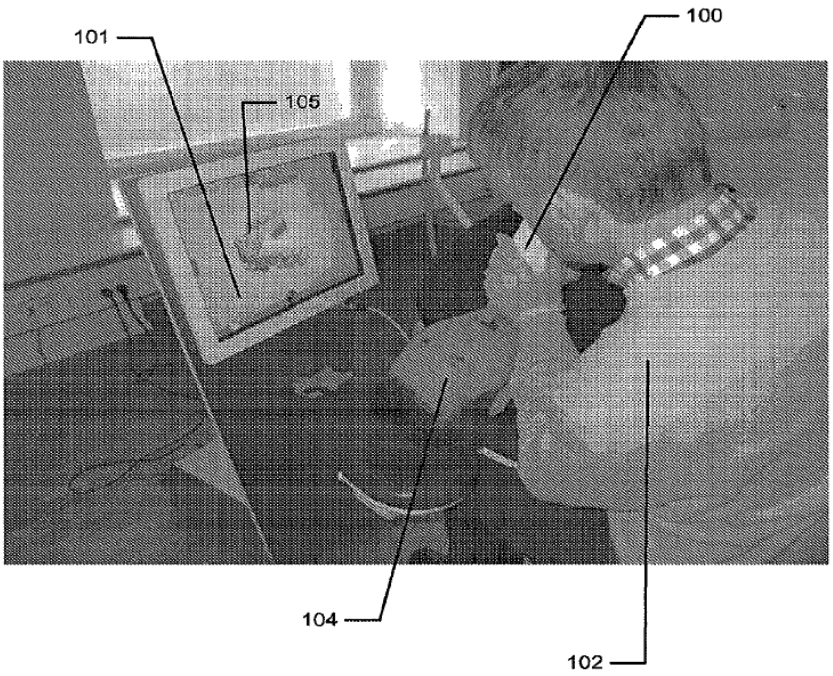

Figure 1 above shows operator 102 using intraoral scanner 100 to record some intraoral 3D geometry and displayed 3D model 105 of the scanned data on computer screen 101. *Id.* at Fig. 1, 11:31–37.

The 3D user interface functionality is provided by at least one motion sensor built into or on the device. *Id.* at 6:46–56. Two different types of motion sensors are described. *Id.* at 6:48–59. One type of motion sensor includes accelerometers, gyros, and magnetometers, which can sense rotations, lateral motion, and/or combinations thereof. *Id.* at 6:48–51. Another type of motion sensor uses infrared sensing. *Id.* at 6:51. At least one infrared sensor is mounted on the device, and at least one infrared emitter can be mounted in the surroundings of the device. *Id.* at 6:51–54. Conversely, the at least one emitter can be mounted on the device, and the at least one sensor in the surroundings. *Id.* at 6:54–56. Another possibility is to use infrared reflector(s) on the device, and both sensor(s) and emitter(s) on the surroundings. *Id.* at 6:56–58.

An example of user interface functionality in the form of remote controlling using the handheld device to determine the view to be displayed is provided by Figures 2a and 2b and respective descriptive disclosure. *Id.* at 11:9–42. The motion sensors (not shown) in handheld device 100, i.e. scanner, allow user 102 to determine the view shown on the display 101, i.e. screen, by moving handheld device 100. *Id.* at 11:10–14.

The operation functionality of device 100 is to record some intraoral 3D geometry, and the user interface functionality is to rotate, pan, and zoom 3D model 105 of the scanned data on computer screen 101. *Id.* at 11:32–37. The integration of the user interface functionality in device 100 is provided by motion sensors (not visible), which can be accelerometers inside scanner 100, whose readings determine the orientation of 3D model 105 of the teeth acquired by scanner 100 on computer screen 101. *Id.* at 11:37–42.

The user interface functionality is illustrated in Figure 2a, reproduced below. Figure 2a shows that pointing device 100 down can provide 3D model 105 of the scanned teeth shown from a downward viewing angle. *Id.* at 11:15–17.

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