UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ALIGN TECHNOLOGY, INC.
Petitioner

v.

3SHAPE A/S
Patent Owner

Case No. PGR2018-00103
Patent 9,962,244

PETITION FOR POST-GRANT REVIEW
OF U.S. PATENT NO. 9,962,244

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1. [1.P]: "A focus scanner for recording surface geometry and surface color of an object" 21

2. [1.1]: "a multichromatic light source configured for providing a multichromatic probe light for illumination of the object" 22

3. [1.2]: "a color image sensor comprising an array of image sensor pixels for capturing one or more 2D images of light received from said object" 23

4. [1.3.a]: "wherein the focus scanner is configured to operate by translating a focus plane along an optical axis of the focus scanner" 23

5. [1.3.b]: "wherein the focus scanner is configured to operate by…capturing a series of the 2D images, each 2D image of the series is at a

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different focus plane position such that the series of captured 2D images forms a stack of 2D images" 24

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7. [1.4.b]: "the data processing system also configured to derive surface color information for the block of said image sensor pixels from at least one of the 2D images used to derive the surface geometry information".....26

8. [1.5.a]: "wherein the data processing system further is configured to combining [sic] a number of sub-scans to generate a digital 3D representation of the object, and" 28

9. [1.5.b]: "determining [sic] object color of at least one point of the generated digital 3D representation of the object from sub-scan color of the sub-scans combined to generate the digital 3D representation" 29

10. [1.5.c]: "such that the digital 3D representation expresses both geometry and color profile of the object" 30

11. [1.6]: "wherein determining the object color comprises computing a weighted average of sub-scan color values derived for corresponding points in overlapping sub-scans at that point of the object surface." 31

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D. Claim 4: "The focus scanner according to claim 1, where deriving the surface geometry information and surface color information comprises calculating for several 2D images a correlation measure between the portion of

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the 2D image captured by said block of image sensor pixels and a weight function, where the weight function is determined based on information of the configuration of the spatial pattern."....45

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G. Claim 8: "The focus scanner according to claim 5, wherein the data processing system is configured for determining a sub-scan color for a point on a generated sub-scan based on the surface color information of the 2D image in the series in which the correlation measure has its maximum value for the corresponding block of image sensor pixels." 48

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I. Claim 10: "The focus scanner according to claim 9, where the data processing system is configured for interpolating surface color information of at least two 2D images in a series when determining the sub-scan color." 51

J. Claim 15: "The focus scanner according to claim 1, where the color image sensor comprises a color filter array comprising at least three types of colors filters, each allowing light in a known wavelength range, W1, W2, and W3 respectively, to propagate through the color filter."....51

K. Claim 16: "The focus scanner according to claim 15, where the surface geometry information is derived from light in a selected wavelength range of the spectrum provided by the multichromatic light source." 52

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Q. Claim 28: "The focus scanner according to claim 10, where the interpolation is of surface color information of neighboring 2D images in a series." 57

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