

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	13	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	001	AADR. AMERICAN ASSOCIATION FOR DENTAL RESEARCH, Summary of Activities, March 20-23,1980, Los Angeles, CA, p. 195.	<input type="checkbox"/>
	002	ALCANIZ, et al., "An Advanced System for the Simulation and Planning of Orthodontic Treatments," Karl Heinz Hohne and Ron Kikinis (eds.), Visualization in Biomedical Computing, 4th Intl. Conf., VBC '96, Hamburg, Germany, September 22-25, 1996, Springer-Verlag, pp. 511-520.	<input type="checkbox"/>
	003	ALEXANDER et al., "The DigiGraph Work Station Part 2 Clinical Management," JCO, pp. 402-407 (July 1990).	<input type="checkbox"/>
	004	ALTSCHULER, "3D Mapping of Maxillo-Facial Prosthesis," AADR Abstract #607, 2 pages total, (1980).	<input type="checkbox"/>
	005	ALTSCHULER et al., "Analysis of 3-D Data for Comparative 3-D Serial Growth Pattern Studies of Oral-Facial Structures," AADR Abstracts, Program and Abstracts of Papers, 57th General Session, IADR HP Annual Session, March 29, 1979 - April 1, 1979, New Orleans Marriot, Journal of Dental Research, Vol. 58, January 1979, Special Issue A, p. 221.	<input type="checkbox"/>
	006	ALTSCHULER et al., "Laser Electro-Optic System for Rapid Three-Dimensional (3D) Topographic Mapping of Surfaces," Optical Engineering, 20(6):953-961 (1981).	<input type="checkbox"/>
	007	ALTSCHULER et al., "Measuring Surfaces Space-Coded by a Laser-Projected Dot Matrix," SPIE Imaging Applications for Automated Industrial Inspection and Assembly, Vol. 182, p. 187-191 (1979).	<input type="checkbox"/>
	008	ANDERSSON et al., "Clinical Results with Titanium Crowns Fabricated with Machine Duplication and Spark Erosion," Acta. Odontol. Scand., 47:279-286 (1989).	<input type="checkbox"/>
	009	ANDREWS, The Six Keys to Optimal Occlusion Straight Wire, Chapter 3, pp 13-24 (1989).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
 If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	14	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	010	BARTELS, et al., An Introduction to Splines for Use in Computer Graphics and Geometric Modeling, Morgan Kaufmann Publishers, pp. 422-425 (1987).	<input type="checkbox"/>
	011	BAUMRIND, "A System for Craniofacial Mapping Through the Integration of Data from Stereo X-Ray Films and Stereo Photographs," an invited paper submitted to the 1975 American Society of Photogram Symposium on Close-Range Photogram Systems, University of Ill., Aug. 26-30, 1975, pp. 142-166.	<input type="checkbox"/>
	012	BAUMRIND et al., "A Stereophotogrammetric System for the Detection of Prosthesis Loosening in Total Hip Arthroplasty," NATO Symposium on Applications of Human Biostereometrics," July 9-13, 1978, SPIE, Vol. 166, pp. 112-123.	<input type="checkbox"/>
	013	BAUMRIND et al., "Mapping the Skull in 3-D," reprinted from J. Calif. Dent. Assoc., 48(2), 11 pages total, (1972 Fall Issue).	<input type="checkbox"/>
	014	BAUMRIND, "Integrated Three-Dimensional Craniofacial Mapping: Background, Principles, and Perspectives," Semin. in Orthod., 7(4):223-232 (December 2001).	<input type="checkbox"/>
	015	BEGOLE et al., "A Computer System for the Analysis of Dental Casts," The Angle Orthod., 51(3):253-259 (July 1981).	<input type="checkbox"/>
	016	BERNARD et al., "Computerized Diagnosis in Orthodontics for Epidemiological Studies: A Progress Report," Abstract, J. Dental Res. Special Issue, Vol. 67, p. 169, paper presented at International Association for Dental Research 66th General Session, March 9-13, 1988, Montreal, Canada.	<input type="checkbox"/>
	017	BHATIA et al., "A Computer-Aided Design for Orthognathic Surgery," Br. J. Oral Maxillofac. Surg., 22:237- 253 (1984).	<input type="checkbox"/>
	018	BIGGERSTAFF, "Computerized Diagnostic Setups and Simulations," Angle Orthod., 40(1):28-36 (January 1970).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	15	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	019	BIGGERSTAFF et al., "Computerized Analysis of Occlusion in the Postcanine Dentition," Am. J. Orthod., 61(3): 245-254 (March 1972).	<input type="checkbox"/>
	020	BIOSTAR OPEATION & TRAINING MANUAL. Great Lakes Orthodontics, Ltd. 199 Fire Tower Drive, Tonawanda, New York. 14150-5890, 20 pages total (1990).	<input type="checkbox"/>
	021	BLU, et al., "Linear interpolation revitalized", IEEE Trans. Image Proc., 13(5):710-719 (May 2004).	<input type="checkbox"/>
	022	BOURKE, "Coordinate System Transformation," (June 1996), p. 1, retrieved from the Internet 11/05/2004, URL< http://astronomy.swin.edu.au/~pbourke/projection/coords>.	<input type="checkbox"/>
	023	BOYD et al., "Three Dimensional Diagnosis and Orthodontic Treatment of Complex Malocclusions With the Invisalipn Appliance," Semin. Orthod., 7(4):274-293 (December 2001).	<input type="checkbox"/>
	024	BRANDESTINI et al., "Computer Machined Ceramic Inlays: In Vitro Marginal Adaptation," J. Dent. Res. Special Issue, Abstract 305, Vol. 64, p. 208 (1985).	<input type="checkbox"/>
	025	BROOK et al., "An Image Analysis System for the Determination of Tooth Dimensions from Study Casts: Comparison with Manual Measurements of Mesio-distal Diameter," J. Dent. Res., 65(3):428-431 (March 1986).	<input type="checkbox"/>
	026	BURSTONE et al., Precision Adjustment of the Transpalatal Lingual Arch: Computer Arch Form IN Predetermination, Am, Journal of Orthodontics, Vol. 79, No. 2 (Feb. 1981), pp. 115-133.	<input type="checkbox"/>
	027	BURSTONE (interview), "Dr. Charles J. Burstone on The Uses of the Computer in Orthodontic Practice (Part 1)," J. Clin. Orthod., 13(7):442-453 (July 1979).	<input type="checkbox"/>
	028	BURSTONE (interview), "Dr. Charles J. Burstone on The Uses of the Computer in Orthodontic Practice (Part 2)," J. Clin. Orthod., 13(8):539-551 (August 1979).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
		Application Number	15834608		
		Filing Date	12-07-2017		
		First Named Inventor	KITCHING; Ian		
		Art Unit	3732		
		Examiner Name	Not yet assigned		
		Attorney Docket Number	22773-774.304		
Sheet	16	of	30		

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	029	Cardinal Industrial Finishes, Powder Coatings information posted at< http://www.cardinalpaint.com > on Aug. 25, 2000, 2 pages.	<input type="checkbox"/>
	030	CARNAGHAN, "An Alternative to Holograms for the Portrayal of Human Teeth," 4th Int'l. Conf. on Holographic Systems, Components and Applications, Sept. 15, 1993, pp. 228-231.	<input type="checkbox"/>
	031	CHACONAS et al., "The DigiGraph Work Station, Part 1, Basic Concepts," JCO, pp. 360-367 (June 1990).	<input type="checkbox"/>
	032	CHAFETZ et al., "Subsidence of the Femoral Prosthesis, A Stereophotogrammetric Evaluation," Clin. Orthop. Relat. Res., No. 201, pp. 60-67 (December 1985).	<input type="checkbox"/>
	033	CHIAPPONE, (1980). Constructing the Gnathologic Setup and Positioner, J. Clin. Orthod, Vol. 14, pp. 121- 133.	<input type="checkbox"/>
	034	COTTINGHAM, (1969). Gnathologic Clear Plastic Positioner, Am. J. Orthod, Vol. 55, pp. 23-31.	<input type="checkbox"/>
	035	CRAWFORD, "CAD/CAM in the Dental Office: Does It Work?", Canadian Dental Journal, Vol. 57, No. 2, pp. 121-123 (February 1991).	<input type="checkbox"/>
	036	CRAWFORD, "Computers in Dentistry: Part 1 CAD/CAM: The Computer Moves Chairside," Part 2 F. Duret — A Man with a Vision," Part 3 The Computer Gives New Vision — Literally," Part 4 Bytes 'N Bites — The Computer Moves from the Front Desk to the Operator," Canadian Dental Journal, Vol. 54 (9), pp. 661-666 (1988).	<input type="checkbox"/>
	037	CROOKS, "CAD/CAM Comes to USC," USC Dentistry, pp. 14-17 (Spring 1990).	<input type="checkbox"/>
	038	CURETON, Correcting Malaligned Mandibular Incisors with Removable Retainers, J. Clin. Orthod, Vol. 30, No. 7 (1996) pp. 390-395.	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	17	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	039	CURRY et al., "Integrated Three-Dimensional Craniofacial Mapping at the Craniofacial Research Instrumentation Laboratory/University of the Pacific," Semin. Orthod., 7(4):258-265 (December 2001).	<input type="checkbox"/>
	040	CUTTING et al., "Three-Dimensional Computer-Assisted Design of Craniofacial Surgical Procedures: Optimization and Interaction with Cephalometric and CT-Based Models," Plast. 77(6):877-885 (June 1986).	<input type="checkbox"/>
	041	DCS Dental AG, "The CAD/CAM 'DCS Titan System' for Production of Crowns/Bridges," DSC Production AG, pp. 1-7 (January 1992).	<input type="checkbox"/>
	042	Definition for gingiva. Dictionary.com pg 1-3. Retrieved from the internet 11/5/04< http://reference.com/search/search?q=gingiva>.	<input type="checkbox"/>
	043	DEFRANCO et al., "Three-Dimensional Large Displacement Analysis of Orthodontic Appliances," J. Biomechanics, 9:793-801 (1976).	<input type="checkbox"/>
	044	DENTAL INSTITUTE UNIVERSITY OF ZURICH SWITZERLAND, Program for International Symposium JD on Computer Restorations: State of the Art of the CEREC-Method, May 1991, 2 pages total.	<input type="checkbox"/>
	045	DENTRAC CORPORATION, Dentrac document, pp. 4-13 (1992).	<input type="checkbox"/>
	046	DENT-X posted on 09/24/98 at< http://www.dent-x.com/DentSim.htm>, 6 pages.	<input type="checkbox"/>
	047	DOYLE, "Digital Dentistry," Computer Graphics World, pp. 50-52, 54 (October 2000).	<input type="checkbox"/>
	048	DuraClear™ product information, Allesee Orthodontic Appliances-Pro Lab, 1 page (1997).	<input type="checkbox"/>
	049	DURET et al., "CAD/CAM Imaging in Dentistry," Curr. Opin. Dent., 1:150-154 (1991).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	18	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	050	DURET et al, "CAD-CAM in Dentistry," J. Am. Dent. Assoc. 117:715-720 (November 1988).	<input type="checkbox"/>
	051	DURET, "The Dental CAD/CAM, General Description of the Project," Henson International Product Brochure, 18 pages total, January 1986.	<input type="checkbox"/>
	052	DURET, "Vers Une Prothese Informatisee," (English translation attached), Tonus, Vol. 75, pp. 55-57 (November 15, 1985).	<input type="checkbox"/>
	053	ECONOMIDES, "The Microcomputer in the Orthodontic Office," JCO, pp. 767-772 (November 1979).	<input type="checkbox"/>
	054	ELSASSER, Some Observations on the History and Uses of the Kesling Positioner, Am. J. Orthod. (1950) 36:368-374.	<input type="checkbox"/>
	055	English translation of Japanese Laid-Open Publication No. 63-11148 to inventor T. Ozukuri (Laid-Open on January 18, 1998) pp. 1-7.	<input type="checkbox"/>
	056	FELTON et al., "A Computerized Analysis of the Shape and Stability of Mandibular Arch Form," Am. J. Orthod. Dentofacial Orthop., 92(6):478-483 (December 1987).	<input type="checkbox"/>
	057	FRIEDE et al., "Accuracy of Cephalometric Prediction in Orthognathic Surgery," Abstract of Papers, J. Dent. Res., 70:754-760 (1987).	<input type="checkbox"/>
	058	FUTTERLING et a/., "Automated Finite Element Modeling of a Human Mandible with Dental Implants," JS WSCG '98 -Conference Program, retrieved from the Internet:< http://wscg.zcu.cz/wscg98/papers98/Strasser 98.pdf >, 8 pages.	<input type="checkbox"/>
	059	GAO et al., "3-D element Generation for Multi-Connected Complex Dental and Mandibular Structure," Proc. Intl Workshop on Medical Imaging and Augmented Reality, pp. 267-271 (June 12, 2001).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	19	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	060	GIM-ALLDENT Deutschland, "Das DUX System: Die Technik," 2 pages total (2002).	<input type="checkbox"/>
	061	GOTTLEIB et al., "JCO Interviews Dr. James A. McNamura, Jr., on the Frankel Appliance: Part 2: Clinical 1-1 Management," J. Clin. Orthod., 16(6):390-407 (June 1982).	<input type="checkbox"/>
	062	GRAYSON, "New Methods for Three Dimensional Analysis of Craniofacial Deformity, Symposium: JW Computerized Facial Imaging in Oral and Maxiofacial Surgery," AAOMS, 3 pages total, (September 13, 1990).	<input type="checkbox"/>
	063	GUESS et al., "Computer Treatment Estimates In Orthodontics and Orthognathic Surgery," JCO, pp. 262- 28 (April 1989).	<input type="checkbox"/>
	064	HEAVEN et a/., "Computer-Based Image Analysis of Artificial Root Surface Caries," Abstracts of Papers," J. Dent. Res., 70:528 (April 17-21, 1991).	<input type="checkbox"/>
	065	HIGHBEAM RESEARCH, "Simulating Stress Put on Jaw," Tooling & Production [online], November 1996, n pp. 1-2, retrieved from the Internet on 11/05/2004, URL ">http://static.highbeam.com/t/toolingampproduction/november011996/simulatingstressputonfa...>	<input type="checkbox"/>
	066	HIKAGE, "Integrated Orthodontic Management System for Virtual Three-Dimensional Computer Graphic Simulation and Optical Video Image Database for Diagnosis and Treatment Planning", Journal of Japan KA Orthodontic Society, February 1987, English translation, pp. 1-38, Japanese version, 46(2), pp. 248-269 (60 pages total).	<input type="checkbox"/>
	067	HOFFMANN, et al., "Role of Cephalometry for Planning of Jaw Orthopedics and Jaw Surgery Procedures," (Article Summary in English, article in German), Informatbnen, pp. 375-396 (March 1991).	<input type="checkbox"/>
	068	HOJJATIE et al., "Three-Dimensional Finite Element Analysis of Glass-Ceramic Dental Crowns," J. Biomech., 23(11):1157-1166 (1990).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO		Complete if Known	
		Application Number	15834608
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <small>(Use as many sheets as necessary)</small>		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	20	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	069	HUCKINS, "CAD-CAM Generated Mandibular Model Prototype from MRI Data," AAOMS, p. 96 (1999).	<input type="checkbox"/>
	070	Important Tip About Wearing the Red White & Blue Active Clear Retainer System," Allesee Orthodontic Appliances-Pro Lab, 1 page 1998).	<input type="checkbox"/>
	071	JCO Interviews, Craig Andreiko , DDS, MS on the Elan and Orthos Systems," JCO, pp. 459-468 (Aug. 1994).	<input type="checkbox"/>
	072	JCO Interviews, Dr. Homer W. Phillips on Computers in Orthodontic Practice, Part 2," JCO. 1997; 1983:819-831.	<input type="checkbox"/>
	073	JERROLD, "The Problem, Electronic Data Transmission and the Law," AJO-DO, pp. 478-479 (Apr. 1988).	<input type="checkbox"/>
	074	JONES et al., "An Assessment of the Fit of a Parabolic Curve to Pre- and Post-Treatment Dental Arches," Br. J. Orthod., 16:85-93 (1989).	<input type="checkbox"/>
	075	JP FABER et al., "Computerized Interactive Orthodontic Treatment Planning," Am. J. Orthod., 73(1):36-46 (January 1978).	<input type="checkbox"/>
	076	KAMADA et.al., Case Reports On Tooth Positioners Using LTV Vinyl Silicone Rubber, J. Nihon University School of Dentistry (1984) 26(1): 11 -29.	<input type="checkbox"/>
	077	KAMADA et.al., Construction of Tooth Positioners with LTV Vinyl Silicone Rubber and Some Case KJ Reports, J. Nihon University School of Dentistry (1982) 24(1):1-27.	<input type="checkbox"/>
	078	KANAZAWA et al., "Three-Dimensional Measurements of the Occlusal Surfaces of Upper Molars in a Dutch Population," J. Dent Res., 63(11):1298-1301 (November 1984).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.
ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO		Complete if Known	
		Application Number	15834608
INFORMATION DISCLOSURE STATEMENT BY APPLICANT <small>(Use as many sheets as necessary)</small>		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	21	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	079	KESLING, Coordinating the Predetermined Pattern and Tooth Positioner with Conventional Treatment, KN Am. J. Orthod. Oral Surg. (1946) 32:285-293.	<input type="checkbox"/>
	080	KESLING et al., The Philosophy of the Tooth Positioning Appliance, American Journal of Orthodontics and Oral surgery. 1945; 31:297-304.	<input type="checkbox"/>
	081	KLEEMAN et al., The Speed Positioner, J. Clin. Orthod. (1996) 30:673-680.	<input type="checkbox"/>
	082	KOCHANEK, "Interpolating Splines with Local Tension, Continuity and Bias Control," Computer Graphics, ri 18(3):33-41 (July 1984). KM Oral Surgery (1945) 31 :297-30.	<input type="checkbox"/>
	083	KUNII et al., "Articulation Simulation for an Intelligent Dental Care System," Displays 15:181-188 (1994).	<input type="checkbox"/>
	084	KURODA et al., Three-Dimensional Dental Cast Analyzing System Using Laser Scanning, Am. J. Orthod. Dentofac. Orthop. (1996) 110:365-369.	<input type="checkbox"/>
	085	LAURENDEAU, et al., "A Computer-Vision Technique for the Acquisition and Processing of 3-D Profiles of 7 KR Dental Imprints: An Application in Orthodontics," IEEE Transactions on Medical Imaging, 10(3):453-461 (September 1991).	<input type="checkbox"/>
	086	LEINFELDER, et al., "A New Method for Generating Ceramic Restorations: a CAD-CAM System," J. Am. 1-1 Dent. Assoc., 118(6):703-707 (June 1989).	<input type="checkbox"/>
	087	MANETTI, et al., "Computer-Aided Cefalometry and New Mechanics in Orthodontics," (Article Summary in English, article in German), Fortschr Kieferorthop. 44, 370-376 (Nr. 5), 1983.	<input type="checkbox"/>
	088	MCCANN, "Inside the ADA," J. Amer. Dent. Assoc., 118:286-294 (March 1989).	<input type="checkbox"/>
	089	MCNAMARA et al., "Invisible Retainers," J. Cfin. Orthod., pp. 570-578 (August 1985).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	22	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	090	MCNAMARA et al., Orthodontic and Orthopedic Treatment in the Mixed Dentition, Needham Press, pp. 347-353 (January 1993).	<input type="checkbox"/>
	091	MOERMANN et al., "Computer Machined Adhesive Porcelain Inlays: Margin Adaptation after Fatigue Stress," IADR Abstract 339, J. Dent. Res., 66(a):763 (1987).	<input type="checkbox"/>
	092	MOLES, "Correcting Mild Malalignments - As Easy As One, Two, Three," AOA/Pro Corner, Vol. 11, No. 1, 2 pages (2002).	<input type="checkbox"/>
	093	MORMANN et al., "Marginale Adaptation von adhasuven Porzellaninlays in vitro," Separatdruck aus: Schweiz. Mschr. Zahnmed. 95: 1118-1129, 1985.	<input type="checkbox"/>
	094	NAHOUM, "The Vacuum Formed Dental Contour Appliance," N. Y. State Dent. J., 30(9):385-390 (November 1964).	<input type="checkbox"/>
	095	NASH, "CEREC CAD/CAM Inlays: Aesthetics and Durability in a Single Appointment," Dent. Today, 9(8):20, 22-23 (October 1990).	<input type="checkbox"/>
	096	NISHIYAMA et al., "A New Construction of Tooth Repositioner by LTV Vinyl Silicone Rubber," J. Nihon Univ. Sch. Dent., 19(2):93-102 (1977).	<input type="checkbox"/>
	097	PAUL et al., "Digital Documentation of Individual Human Jaw and Tooth Forms for Applications in Orthodontics, Oral Surgery and Forensic Medicine" Proc. of the 24th Annual Conf. of the IEEE Industrial Electronics Society (IECON '98), Sept. 4, 1998, pp. 2415-2418.	<input type="checkbox"/>
	098	PINKHAM, "Foolish Concept Propels Technology," Dentist, 3 pages total, January/February 1989.	<input type="checkbox"/>
	099	PINKHAM, "Inventor's CAD/CAM May Transform Dentistry," Dentist, 3 pages total, September 1990.	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	23	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	100	PONITZ, "Invisible Retainers," Am. J. Orthod., 59(3):266-272 (March 1971).	<input type="checkbox"/>
	101	PROCERA RESEARCH PROJECTS, "PROCERA Research Projects 1993 — Abstract Collection," pp. 3- 7; 28 (1993).	<input type="checkbox"/>
	102	PROFFIT et al., Contemporary Orthodontics, (Second Ed.), Chapter 15, Mosby Inc., pp 470-533 (October 1993).	<input type="checkbox"/>
	103	RAINTREE ESSIX & ARS MATERIALS, INC., Raintree Essix, Technical Magazine Table of contents and Essix Appliances,< http:// www.essix.com/magazine/defaulthtml> Aug. 13, 1997.	<input type="checkbox"/>
	104	REDMOND et al., "Clinical Implications of Digital Orthodontics," Am. J. Orthod. Dentofacial Orthop., 117(2):240-242 (2000).	<input type="checkbox"/>
	105	REKOW, "A Review of the Developments in Dental CAD/CAM Systems," (contains references to Japanese efforts and content of the papers of particular interest to the clinician are indicated with a one line summary of their content in the bibliography), Curr. Opin. Dent., 2:25-33 (June 1992).	<input type="checkbox"/>
	106	REKOW, "CAD/CAM in Dentistry: A Historical Perspective and View of the Future," J. Can. Dent. Assoc., 58(4):283, 287-288 (April 1992).	<input type="checkbox"/>
	107	REKOW, "Computer-Aided Design and Manufacturing in Dentistry: A Review of the State of the Art," J. Prosthet. Dent., 58(4):512-516 (October 1987).	<input type="checkbox"/>
	108	REKOW, "Dental CAD-CAM Systems: What is the State of the Art?", J. Amer. Dent. Assoc., 122:43-48 1991.	<input type="checkbox"/>
	109	REKOW et al., "CAD/CAM for Dental Restorations - Some of the Curious Challenges," IEEE Trans. Biomed. Eng., 38(4):344-345 (April 1991).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	24	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	110	REKOW et al., "CAD/CAM for Dental Restorations - Some of the Curious Challenges," IEEE Trans. Biomed. Eng., 38(4):314-318 (April 1991).	<input type="checkbox"/>
	111	REKOW et al., "Comparison of Three Data Acquisition Techniques for 3-D Tooth Surface Mapping," Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 13(1):344-345 1991.	<input type="checkbox"/>
	112	REKOW, "Feasibility of an Automated System for Production of Dental Restorations, Ph.D. Thesis," Univ. of Minnesota, 244 pages total, November 1988.	<input type="checkbox"/>
	113	RICHMOND et al., "The Development of a 3D Cast Analysis System," Br. J. Orthod., 13(1):53-54 (January 1986).	<input type="checkbox"/>
	114	RICHMOND et al., "The Development of the PAR Index (Peer Assessment Rating): Reliability and Validity," Eur. J. Orthod., 14:125-139 (1992).	<input type="checkbox"/>
	115	RICHMOND, "Recording The Dental Cast In Three Dimensions," Am. J. Orthod. Dentofacial Orthop., 92(3):199-206 (September 1987).	<input type="checkbox"/>
	116	RUDGE, "Dental Arch Analysis: Arch Form, A Review of the Literature," Eur. J. Orthod., 3(4):279-284 1981.	<input type="checkbox"/>
	117	SAKUDA et al., "Integrated Information-Processing System In Clinical Orthodontics: An Approach with Use of a Computer Network System," Am. J. Orthod. Dentofacial Orthop., 101(3): 210-220 (March 1992).	<input type="checkbox"/>
	118	SHELLHAS et al., "Three-Dimensional Computed Tomography in Maxillofacial Surgical Planning," Arch. Otolamp!. Head Neck Sur9., 114:438-442 (April 1988).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.
ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	25	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	119	SCHROEDER et al., Eds. The Visual Toolkit, Prentice Hall PTR, New Jersey (1998) Chapters 6, 8 & 9, (pages 153-210,309-354, and 355-428, respectively.	<input type="checkbox"/>
	120	SHILLIDAY, (1971). Minimizing finishing problems with the mini-positioner, Am. J. Orthod. 59:596-599.	<input type="checkbox"/>
	121	SIEMENS, "CEREC - Computer-Reconstruction," High Tech in der Zahnmedizin, 14 pages total (2004).	<input type="checkbox"/>
	122	SINCLAIR, "The Readers' Corner," J. Clin. Orthod., 26(6):369-372 (June 1992).	<input type="checkbox"/>
	123	SIRONA DENTAL SYSTEMS GmbH, CEREC 3D, Manuel utiisateur, Version 2.0X (in French), 2003,114 pages total.	<input type="checkbox"/>
	124	STOLL et al., "Computer-aided Technologies in Dentistry," (article summary in English, article in German), Dtsch Zahna'rztli Z 45, pp. 314-322 (1990).	<input type="checkbox"/>
	125	STURMAN, "Interactive Keyframe Animation of 3-D Articulated Models," Proceedings Graphics Interface '84, May-June 1984, pp. 35-40.	<input type="checkbox"/>
	126	The Choice Is Clear: Red, White & Blue ... The Simple, Affordable, No-Braces Treatment," Allesee HI Orthodontic Appliances-Pro Lab product information for doctors. http://ormco.com/aoa/applianceservices/RWB/doctorhtml , 5 pages (May 19, 2003).	<input type="checkbox"/>
	127	The Choice is Clear: Red, White & Blue ... The Simple, Affordable, No-Braces Treatment," Allesee HJ Orthodontic Appliances-Pro Lab product information for patients,< http://ormco.com/aoa/applianceservices/RWB/patients.html >, 2 pages (May 19, 2003).	<input type="checkbox"/>
	128	The Choice Is Clear: Red, White & Blue ... The Simple, Affordable, No-Braces Treatment," Allesee Orthodontic Appliances-Pro Lab product information, 6 pages (2003).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.
If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	26	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	129	The Red, White & Blue Way to Improve Your Smile!" Allesee Orthodontic Appliances-Pro Lab product information for patients, 2 pages 1992.	<input type="checkbox"/>
	130	TRUAX L., "Truax Clasp-Less(TM) Appliance System," Funct. Orthod., 9(5):22-4, 26-8 (September-October 1992).	<input type="checkbox"/>
	131	TRU-TAIN ORTHODONTIC & DENTAL SUPPLIES, Product Brochure, Rochester, Minnesota 55902, 16 pages total (1996).	<input type="checkbox"/>
	132	U.S. Department of Commerce, National Technical Information Service, "Automated Crown Replication Using Solid Photography SM," Solid Photography Inc., Melville NY, October 1977, 20 pages total.	<input type="checkbox"/>
	133	U.S. Department of Commerce, National Technical Information Service, "Holodontography: An Introduction to Dental Laser Holography," School of Aerospace Medicine Brooks AFB Tex, March 1973, 37 pages total.	<input type="checkbox"/>
	134	U.S. Provisional Patent Application No. 60/050342, filed on June 20,1997, 41 pages total.	<input type="checkbox"/>
	135	VAN DER LINDEN, "A New Method to Determine Tooth Positions and Dental Arch Dimensions," J. Dent. Res., 51(4):1104 (July-August 1972).	<input type="checkbox"/>
	136	VAN DER LINDEN et al., "Three-Dimensional Analysis of Dental Casts by Means of the Optocom," J. Dent. Res., p. 1100 (July-August 1972).	<input type="checkbox"/>
	137	VAN DER ZEL, "Ceramic-Fused-to-Metal Restorations with a New CAD/CAM System," Quintessence Int., 24(11):769-778 (1993).	<input type="checkbox"/>
	138	VARADY et al., "Reverse Engineering Of Geometric Models—An Introduction," Computer-Aided Design, 29(4):255-268,1997.	<input type="checkbox"/>

Examiner Signature /MIRAYDA A APONTE/	Date Considered 08/06/2019
---------------------------------------	----------------------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.
ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)		Complete if Known	
		Application Number	15834608
		Filing Date	12-07-2017
		First Named Inventor	KITCHING; Ian
		Art Unit	3732
		Examiner Name	Not yet assigned
		Attorney Docket Number	22773-774.304
Sheet	27	of	30

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	139	VERSTREKEN et al., "An Image-Guided Planning System for Endosseous Oral Implants," IEEE Trans. Med. Imaging, 17(5):842-852 (October 1998).	<input type="checkbox"/>
	140	WARUNEK et al., "Physical and Mechanical Properties of Elastomers in Orthodontic Positioners, Am J. Orthod. Dentofac. Orthop, Vol. 95, No. 5, (May 1989) pp. 399-400.	<input type="checkbox"/>
	141	WARUNEK et.al., Clinical Use of Silicone Elastomer Applicances, JCO (1989) XXIII(10):694-700.	<input type="checkbox"/>
	142	WELLS, Application of the Positioner Appliance in Orthodontic Treatment, Am. J. Orthodont. (1970) 58:351-366.	<input type="checkbox"/>
	143	WILLIAMS, "Dentistry and CAD/CAM: Another French Revolution," J. Dent. Practice Admin., pp. 2-5 (January/March 1987).	<input type="checkbox"/>
	144	WILLIAMS, "The Switzerland and Minnesota Developments in CAD/CAM," J. Dent. Practice Admin., pp. 50-55 (April/June 1987).	<input type="checkbox"/>
	145	WISHAN, "New Advances in Personal Computer Applications for Cephalometric Analysis, Growth Prediction, Surgical Treatment Planning and Imaging Processing," Symposium: Computerized Facial Imaging in Oral and Maxillofacial Surgery Presented on September 13,1990.	<input type="checkbox"/>
	146	WSCG'98 - Conference Program, "The Sixth International Conference in Central Europe on Computer Graphics and Visualization '98," February 9-13, 1998, pp. 1-7, retrieved from the Internet on 11/05/2004, URL< http://wscg.zcu.cz/wscg98/wscg98.h >.	<input type="checkbox"/>
	147	XIA et al., "Three-Dimensional Virtual-Reality Surgical Planning and Soft-Tissue Prediction for Orthognathic Surgery," IEEE Trans. Inf. Technol. Biomed., 5(2):97-107 (June 2001).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.
ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
		Application Number	15834608		
		Filing Date	12-07-2017		
		First Named Inventor	KITCHING; Ian		
		Art Unit	3732		
		Examiner Name	Not yet assigned		
		Attorney Docket Number	22773-774.304		
Sheet	28	of	30		

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author(in CAPITAL LETTERS),title of the article(when appropriate), title of the item (book,magazine,journal,serial,symposium,catalog,etc.),date,page(s),volume-issue number(s),publisher, city and/or country where published.	T ²
	148	YAMAMOTO et al., "Optical Measurement of Dental Cast Profile and Application to Analysis of Three-Dimensional Tooth Movement in Orthodontics," Front. Med. Biol. Eng., 1(2):119-130 (1988).	<input type="checkbox"/>
	149	YAMAMOTO et al., "Three-Dimensional Measurement of Dental Cast Profiles and Its Applications to Orthodontics," Conf. Proc. IEEE Eng. Med. Biol. Soc., 12(5):2051-2053 (1990).	<input type="checkbox"/>
	150	YAMANY et al., "A System for Human Jaw Modeling Using Intra-Oral Images," Proc. of the 20th Annual Conf. of the IEEE Engineering in Medicine and Biology Society, November 1, 1998, Vol. 2, pp. 563-566.	<input type="checkbox"/>
	151	YOSHII, "Research on a New Orthodontic Appliance: The Dynamic Positioner (D.P.); I. The D.P. Concept and Implementation of Transparent Silicone Resin (Orthocon)," Nippon Dental Review, 452:61-74 (June 1980).	<input type="checkbox"/>
	152	YOSHII, "Research on a New Orthodontic Appliance: The Dynamic Positioner (D.P.); II. The D.P. Manufacturing Procedure and Clinical Applications," Nippon Dental Review, 454:107-130 (August 1980).	<input type="checkbox"/>
	153	YOSHII, "Research on a New Orthodontic Appliance: The Dynamic Positioner (D.P.); III. The General Concept of the D.P. Method and Its Therapeutic Effect, Part 1, Dental and Functional Reversed Occlusion Case Reports," Nippon Dental Review, 457:146-164 (November 1980).	<input type="checkbox"/>
	154	YOSHII, "Research on a New Orthodontic Appliance: The Dynamic Positioner (D.P.); III.- The General Concept of the D.P. Method and Its Therapeutic Effect, Part 2. Skeletal Reversed Occlusion Case Reports," Nippon Dental Review, 458:112-129 (December 1980).	<input type="checkbox"/>
	155	You May Be A Candidate For This Invisible No-Braces Treatment," Allesee Orthodontic Appliances-Pro Lab product information for patients, 2 pages (2002).	<input type="checkbox"/>

Examiner Signature	/MIRAYDA A APONTE/	Date Considered	08/06/2019
--------------------	--------------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached. This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.
ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use as many sheets as necessary)				Complete if Known	
				Application Number	15834608
				Filing Date	12-07-2017
				First Named Inventor	KITCHING; Ian
				Art Unit	3732
				Examiner Name	Not yet assigned
				Attorney Docket Number	22773-774.304
Sheet	29	of	30		

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Charles Hagadorn III/	Date (YYYY-MM-DD)	2017-12-14
Name/Print	Charles Hagadorn III	Registration Number	62,367

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A.A/

To: patentdocket@wsgr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 107046

Aug 12, 2019 03:30:42 AM

Dear PAIR Customer:

WSGR / Align Technology , Inc.
650 Page Mill Road
Palo Alto, CA 94304
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 107046 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
15834608	M327	08/12/2019	22773-774.304
	INTV.SUM.APP	08/12/2019	22773-774.304
	1449	08/12/2019	22773-774.304

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM



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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/834,608	12/07 2017	Ian Kitching	22773-774.304	1210
107046	7590	08 07 2019	EXAMINER	
WSGR / Align Technology , Inc. 650 Page Mill Road Palo Alto, CA 94304			APONTE, MIRAYDA ARLENE	
			ART UNIT	PAPER NUMBER
			3772	
			NOTIFICATION DATE	DELIVERY MODE
			08/07/2019	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):

patentdocket@wsg.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Application No. : 15834608
Applicant : Kitching
Filing Date : 12/07/2017
Date Mailed : 08/07/2019

NOTICE TO FILE CORRECTED APPLICATION PAPERS

Notice of Allowance Mailed

This application has been accorded an Allowance Date and is being prepared for issuance. The application, however, is incomplete for the reasons below.

Applicant is given two (2) months from the mail date of this Notice within which to respond. This time period for reply is extendable under 37 CFR 1.136(a) for only TWO additional MONTHS.

The informalities requiring correction are indicated in the attachment(s). If the informality pertains to the abstract, specification (including claims) or drawings, the informality must be corrected with an amendment in compliance with 37 CFR 1.121 (or, if the application is a reissue application, 37 CFR 1.173). Such an amendment may be filed after payment of the issue fee if limited to correction of informalities noted herein. See Waiver of 37 CFR 1.312 for Documents Required by the Office of Patent Publication, 1280 Off. Gaz. Patent Office 918 (March 23, 2004). In addition, if the informality is not corrected until after payment of the issue fee, for purposes of 35 U.S.C. 154(b)(1)(iv), "all outstanding requirements" will be considered to have been satisfied when the informality has been corrected. A failure to respond within the above-identified time period will result in the application being ABANDONED.

See attachment(s).

*A copy of this notice **MUST** be returned with the reply. Please address response to "Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450".*

/Joseph Boris/
Publication Branch
Office of Data Management
(571) 272-4200

IDENTIFICATION OF DRAWING DEFICIENCIES

- There is a hole or the image thereof within the illustration. FIG(s)
- The illustration is penetrated or traversed by a solid or broken line that is not intended to be part of the drawing, such as a dark line caused by a flaw in the copying process. FIG(s)
- An ink stamp or the image thereof obscures part of the illustration. FIG(s)
- The drawing is marred by black smudges, obliterations, or fax/copier marks (for example, speckles or dots in a substantial portion of the drawing). FIG(s)
- Figure numbers are duplicated or missing. FIG(s)
- Drawing sheet or figure is missing. FIG(s)
- Numbers, letters, or reference characters in the drawing have been crossed out or are illegibly handwritten. FIG(s)
- The character of the lines, numbers, and letters is poor. FIG(s)
- The drawing's background shows that the original drawing was made on graph paper or other paper with a pattern or decoration. FIG(s)
- The FIG. number label is placed in a location that causes the drawing to be read upside down. FIG(s)
- Data, a reference number, or part of the drawing is truncated or missing, or a lead line has no reference number. FIG(s) 2a
- The drawing and/or the FIG. label contain(s) foreign language. FIG(s)
- This utility application contains a photograph of a view that is capable of being illustrated as a line drawing. FIG(s)
- A petition under 37 CFR 1.84(a)(2) to accept color drawings has been granted, but the brief description of the drawings in the specification does not contain (or has not been amended to contain) the paragraph required by 37 CFR 1.84(a)(2)(iii).
- This reissue application contains added and/or amended drawings that are not labeled as "New" or "Amended" or "Canceled" as required by 37 CFR 1.173(b)(3). FIG(s)
- This Design reissue application contains a drawing that is labeled as "Canceled" but is not surrounded by brackets, or a drawing that is surrounded by brackets but is not labeled as "Canceled." See 37 CFR 1.173(b)(3). FIG(s)
- OTHER:
- COMMENTS:

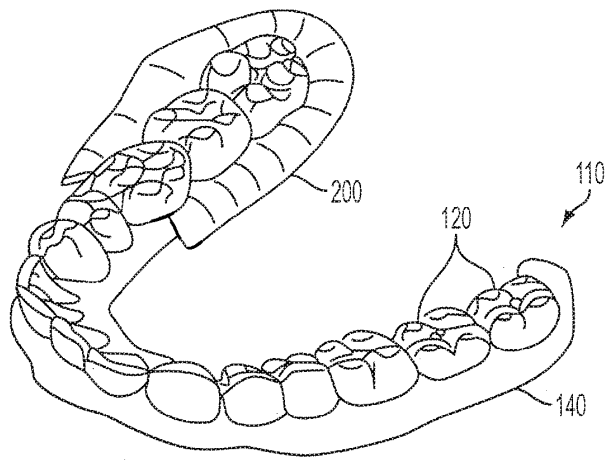


FIG. 2A

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

107046 7590 06/12/2019
WSGR / Align Technology, Inc.
650 Page Mill Road
Palo Alto, CA 94304

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

Danielle Hoffman	(Typed or printed name)
/Danielle Hoffman/	(Signature)
September 11, 2019	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/834,608	12/07/2017	Ian Kitching	22773-774.304	1210

TITLE OF INVENTION: AUTOMATED TREATMENT STAGING FOR TEETH

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	09/12/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
APONTE, MIRAYDA ARLENE	3772	433-024000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363). <input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached. <input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.	2. For printing on the patent front page, list (1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 <u>Wilson Sonsini Goodrich & Rosati</u> (2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____ 3 _____
--	--

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Align Technology, Inc. (B) RESIDENCE: (CITY and STATE OR COUNTRY) San Jose, CA

Please check the appropriate assignee category or categories (will not be printed on the patent): Individual Corporation or other private group entity Government

4a. Fees submitted: Issue Fee Publication Fee (if required) Advance Order - # of Copies _____

4b. Method of Payment: (Please first reapply any previously paid fee shown above)

Electronic Payment via EFS-Web Enclosed check Non-electronic payment by credit card (Attach form PTO-2038)

The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 23-2415

5. Change in Entity Status (from status indicated above)

Applicant certifying micro entity status. See 37 CFR 1.29

Applicant asserting small entity status. See 37 CFR 1.27

Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Charles Hagadorn, III/ Date September 11, 2019
Typed or printed name Charles Hagadorn, III Registration No. 62,367

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on September 11, 2019.

Attorney Docket No.: 22773-774.304

WILSON SONSINI GOODRICH & ROSATI

By: /Danielle Hoffman/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ian Kitching et al.

Application No.: 15/834,608

Filed: December 7, 2017

For: AUTOMATED TREATMENT
STAGING FOR TEETH

Customer No.: 107046

Confirmation No.: 1210

Examiner: Mirayda Arlene Aponte

Art Unit: 3772

**COMMENTS ON STATEMENT OF
REASONS FOR ALLOWANCE**

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In the Notice of Allowability mailed June 12, 2019, the Examiner allowed claims 1-7, 10-18, 21, 22, and 31-32. Although the undersigned attorney agrees with the Examiner's conclusion that these claims are allowable, the undersigned attorney notes that the claims may be allowable for reasons other than those identified by the Examiner and does not concede that the Examiner's characterizations of the terms of the claims and the applied art are correct.

It is believed that no fee is due in connection with this paper. However, should any fees be required, the Commissioner is authorized to charge all required fees to Deposit Account No. 23-2415.

Respectfully submitted,

Dated: September 11, 2019

/Charles Hagadorn, III/

Charles Hagadorn, III
Registration No. 62,367

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1050
Tel: 650-493-9300
Fax 650-493-6811
CHA:dhof

Electronic Patent Application Fee Transmittal

Application Number:	15834608			
Filing Date:	07-Dec-2017			
Title of Invention:	AUTOMATED TREATMENT STAGING FOR TEETH			
First Named Inventor/Applicant Name:	Ian Kitching			
Filer:	Charles C. Hagadorn III/Danielle Hoffman			
Attorney Docket Number:	22773-774.304			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt

EFS ID:	37137077
Application Number:	15834608
International Application Number:	
Confirmation Number:	1210
Title of Invention:	AUTOMATED TREATMENT STAGING FOR TEETH
First Named Inventor/Applicant Name:	Ian Kitching
Customer Number:	107046
Filer:	Charles C. Hagadorn III/Danielle Hoffman
Filer Authorized By:	Charles C. Hagadorn III
Attorney Docket Number:	22773-774.304
Receipt Date:	11-SEP-2019
Filing Date:	07-DEC-2017
Time Stamp:	17:12:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$ 1000
RAM confirmation Number	E20199AH12510011
Deposit Account	232415
Authorized User	Danielle Hoffman

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

- 37 CFR 1.16 (National application filing, search, and examination fees)
- 37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)
 37 CFR 1.20 (Post Issuance fees)
 37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	22773-774-304_Resp_NFCAP_filed_09-11-19.pdf	111399	no	3
			29ba78f6ea415f170240207e665cd51a90f0f140		
Warnings:					
Information:					
2	Applicant Response to Pre-Exam Formalities Notice	22773-774-304_Notice_filed_09-11-19.pdf	113307	no	3
			9bccccca2c3ca8a3b0fe4f9d226df2856906b3859		
Warnings:					
Information:					
3	Drawings-only black and white line drawings	22773-774-304_Drawing_filed_09-11-19.pdf	26205	no	1
			317d5b8fdeeba0f7df9f70299d05b55a9d333bb0		
Warnings:					
Information:					
4	Issue Fee Payment (PTO-85B)	22773-774-304_IssueFeeTransmittal_filed_09-11-19.pdf	92484	no	1
			1ffb8d25a7e56c6dbf05174c74e89f0e6e1bb357		
Warnings:					
Information:					
5	Post Allowance Communication - Incoming	22773-774-304_Comments_filed_09-11-19.pdf	104405	no	2
			9c5e374a13929e5f5349ab17858cd96127909a10		
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30183	no	2
			d346b77bdf761dd7ce9f6e96d922ee602852852f		
Warnings:					
Information:					

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on September 11, 2019.

Attorney Docket No.: 22773-774.304
Align Ref. No.: 1004.US.C1.C1.C2

WILSON SONSINI GOODRICH & ROSATI

By: /Danielle Hoffman/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Ian Kitching et al.

Application No.: 15/834,608

Filed: December 7, 2017

For: AUTOMATED TREATMENT
STAGING FOR TEETH

Customer No.: 107046

Confirmation No.: 1210

Examiner: Mirayda Arlene Aponte

Art Unit: 3772

RESPONSE TO NOTICE TO FILE
CORRECTED APPLICATION PAPERS

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

In response to the Notice to File Corrected Application Papers mailed August 7, 2019, please enter the following amendments and remarks.

Amendments to the Drawings begin on page 2 of this paper and include attached replacement sheets.

Remarks begin on page 3 of this paper.

Appl. No. 15/834,608
Response dated September 11, 2019
Notice to File Corrected Application Papers mailed August 7, 2019

Attorney Docket No.: 22773-774.304

Amendments to the Drawings:

The attached sheet of drawings includes changes to FIG. 2A. The first sheet, which includes FIG. 2A, replaces the original sheet including FIG. 2A.

Attachment: Replacement Sheet

Appl. No. 15/834,608
Response dated September 11, 2019
Notice to File Corrected Application Papers mailed August 7, 2019

Attorney Docket No.: 22773-774.304

REMARKS

In response to the Notice to File Corrected Application Papers, Applicant submits herewith a Replacement Sheet, which amends FIG. 2A of the Drawings to remove an errant line in the original Drawings as filed. Accordingly, no new matter has been added by way of this amendment.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment in connection with this paper to Deposit Account No. 23-2415.

Respectfully submitted,

Dated: September 11, 2019

/Charles Hagadorn, III/

Charles Hagadorn, III
Registration No. 62,367

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1050
Tel: 650-493-9300
Fax 650-493-6811
CHA/dhof



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., ISSUE DATE, PATENT NO., ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/834,608, 10/29/2019, 10456217, 22773-774.304, 1210

107046 7590 10/09/2019
WSGR / Align Technology, Inc.
650 Page Mill Road
Palo Alto, CA 94304

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

- Ian Kitching, Saratoga, CA;
ALIGN TECHNOLOGY, INC., San Jose, CA;
Alexander Dmitriev, Moscow, RUSSIAN FEDERATION;
Alexey Vishnevskiy, Moscow, RUSSIAN FEDERATION;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IR103 (Rev. 10/09)

To: patentdocket@wsg.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 107046

Oct 11, 2019 03:26:02 AM

Dear PAIR Customer:

WSGR / Align Technology , Inc.
650 Page Mill Road
Palo Alto, CA 94304
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 107046 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
15834608	ISSUE.NTF	10/09/2019	22773-774.304

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on July 8, 2020

PATENT
Attorney Docket No.: 22773-774.304

WILSON SONSINI GOODRICH & ROSATI

By: /Hillary Pratt/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of: Ian Kitching et al. Applicant: ALIGN TECHNOLOGY, INC. Patent No.: 10,456,217 Issue Date: October 29, 2019 Serial No.: 15/834,608 Filed: December 7, 2017 Title: AUTOMATED TREATMENT STAGING FOR TEETH	Group Art Unit: 3772 Examiner: Mirayda Arlene Aponte Confirmation No.: 1210
--	---

**REQUEST FOR CERTIFICATE OF CORRECTION OF THE ISSUED PATENT
FOR OFFICE MISTAKE (37 CFR § 1.322)**

Commissioner for Patents
Office of Patent Publication
P.O. Box 1450
Alexandria, VA 22313-1450

ATTN: Certificate of Correction Branch

Commissioner:

It is noted that an error of a clerical nature appears in this patent due to a mistake on the part of the Office, as more fully described below. The Patentee believes that correction thereof does not involve such changes in the patent as would constitute new matter or would require re-examination of the patent. A certificate of correction is therefore requested. Attached hereto is Form PTO/SB/44 which is suitable for printing.

The error and reason for which correction is requested is located at:

Column 17, line 26, claim 11:

Please replace:

“that of the dental objects during treatment stages as”

With:

--of the dental objects during treatment stages as--

The word “that” should have been removed with the Examiner’s Amendment mailed June 12, 2019. Accordingly, Patentee believes the error is attributable to the Patent Office. No fees are required for the submission of this request.

FEE AUTHORIZATION

The Commissioner is authorized to charge any additional fees which may be required, including petition fees, or credit any overpayment to Deposit Account No. 23-2415 (Docket No. 22773-774.304).

Respectfully submitted,

WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

Dated: July 8, 2020

/Luis Perla/
Luis Perla, Ph.D.
Registration No. 77,556

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1050
Tel.: (206) 883-2500
Customer No. 107046

I hereby certify that this correspondence is being filed via
EFS-Web with the United States Patent and Trademark Office
on July 8, 2020

PATENT
Attorney Docket No.: 22773-774.304

WILSON SONSINI GOODRICH & ROSATI

By: /Hillary Pratt/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Patent Application of: Ian Kitching et al. Applicant: ALIGN TECHNOLOGY, INC. Patent No.: 10,456,217 Issue Date: October 29, 2019 Serial No.: 15/834,608 Filed: December 7, 2017 Title: AUTOMATED TREATMENT STAGING FOR TEETH	Group Art Unit: 3772 Examiner: Mirayda Arlene Aponte Confirmation No.: 1210
--	---

**REQUEST FOR CERTIFICATE OF CORRECTION OF THE ISSUED PATENT
FOR APPLICANT MISTAKE (37 CFR § 1.323)**

Commissioner for Patents
Office of Patent Publication
P.O. Box 1450
Alexandria, VA 22313-1450

ATTN: Certificate of Correction Branch

Commissioner:

It is noted that an error of a clerical nature appears in this patent due to Applicant's mistake, as more fully described below. The Patentee believes that correction thereof does not involve such changes in the patent as would constitute new matter or would require re-examination of the patent. A certificate of correction is therefore requested. Attached hereto is Form PTO/SB/44 which is suitable for printing.

The error and reason for which correction is requested is located at:

Column 17, line 30, claim 11:

Please replace:

“objects between its respective initial an final positions;”

With:

--objects between its respective initial and final positions;--

The word “and” should replace the word “an” in line 30 of claim 11. The typographical error was inadvertent and without deceptive intent.

FEE AUTHORIZATION

Please charge the processing fee under 37 CFR 1.20(a) to Deposit Account No. 23-2415 (Docket No. 22773-774.304). The Commissioner is further authorized to charge any additional fees which may be required, including petition fees, or credit any overpayment to Deposit Account No. 23-2415 (Docket No. 22773-774.304).

Respectfully submitted,

WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

Dated: July 8, 2020

/Luis Perla/
Luis Perla, Ph.D.
Registration No. 77,556

WILSON SONSINI GOODRICH & ROSATI
650 Page Mill Road
Palo Alto, CA 94304-1050
Tel.: (206) 883-2500
Customer No. 107046

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 10,456,217

APPLICATION NO.: 15/834,608

ISSUE DATE : October 29, 2019

INVENTOR(S) : Ian Kitching, Alexander Dmitriev, and Alexey Vishnevskiy

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims:

Column 17, line 30, claim 11:

Please replace:

“objects between its respective initial an final positions;”

with:

--objects between its respective initial and final positions;--

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Wilson Sonsini Goodrich & Rosati
650 Page Mill Road
Palo Alto, California 94304-1050

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 10,456,217

APPLICATION NO.: 15/834,608

ISSUE DATE : October 29, 2019

INVENTOR(S) : Ian Kitching, Alexander Dmitriev, and Alexey Vishnevskiy

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the claims:

Column 17, line 26, claim 11:

Please replace:

“that of the dental objects during treatment stages as”

with:

--of the dental objects during treatment stages as--

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Wilson Sonsini Goodrich & Rosati
650 Page Mill Road
Palo Alto, California 94304-1050

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	15834608			
Filing Date:	07-Dec-2017			
Title of Invention:	AUTOMATED TREATMENT STAGING FOR TEETH			
First Named Inventor/Applicant Name:	Ian Kitching			
Filer:	Luis Geovani Perla/Hillary Pratt			
Attorney Docket Number:	22773-774.304			
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
CERTIFICATE OF CORRECTION	1811	1	150	150

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				150

Electronic Acknowledgement Receipt

EFS ID:	39944597
Application Number:	15834608
International Application Number:	
Confirmation Number:	1210
Title of Invention:	AUTOMATED TREATMENT STAGING FOR TEETH
First Named Inventor/Applicant Name:	Ian Kitching
Customer Number:	107046
Filer:	Luis Geovani Perla/Hillary Pratt
Filer Authorized By:	Luis Geovani Perla
Attorney Docket Number:	22773-774.304
Receipt Date:	08-JUL-2020
Filing Date:	07-DEC-2017
Time Stamp:	16:37:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$150
RAM confirmation Number	E202078G43370273
Deposit Account	232415
Authorized User	Hillary Pratt
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.21 (Miscellaneous fees and charges) 37 CFR 1.20 (Post Issuance fees)	

37 CFR 1.19 (Document supply fees)
 37 CFR 1.17 (Patent application and reexamination processing fees)
 37 CFR 1.16 (National application filing, search, and examination fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	22773_774_304_Request_USPTOMistake.pdf	110477	no	2
			608433f6e4fc99f124cd23226981fd734c238f18		
Warnings:					
Information:					
2	Request for Certificate of Correction	22773_774_304_Request_ApplicantMistake.pdf	110764	no	2
			8b37f720a960c9dc6875337b5dd3cc1a642afcc3		
Warnings:					
Information:					
3	Request for Certificate of Correction	22773_774_304_PTOSB_ApplicantMistake.pdf	153501	no	2
			610d0da6397f6b9e1513daff6c171246a5918c2b		
Warnings:					
Information:					
4	Request for Certificate of Correction	22773_774_304_PTOSB_USPTOMistake.pdf	155093	no	2
			60d6ca28e0d5eeca9f936109de9dff7d0d9e3040a		
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30078	no	2
			a6851ee1434aa433daf41495cc24ed20d628d374		
Warnings:					
Information:					
Total Files Size (in bytes):			559913		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.



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 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO., EXAMINER, ART UNIT, PAPER NUMBER, NOTIFICATION DATE, DELIVERY MODE. Includes application details for Ian Kitching and examiner APONTE, MIRAYDA ARLENE.

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):

patentdocket@wsgr.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

Patent No.: 10456217
Issue Date: 10/29/2019
Appl. No.: 15/834,608
Filed: 12/07/2017

PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION

This is a decision on the Certificate of Correction request filed 08 July 2020.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)

Approved Approved in Part Denied

Comments: _____

PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48

This is a decision on the petition filed _____ to correct inventorship under 37 CFR 1.324.

This is a decision on the request under 37 CFR 1.48, petition filed _____. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby: Granted Dismissed

Comment: _____

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/JACQUELINE T JOHANAS/
Supervisory Patent Examiner, Art Unit 3772
Technology Center 3700
Phone: (571)270-5085

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814

To: patentdocket@wsgr.com,,
From: PAIR_eOfficeAction@uspto.gov
Cc: PAIR_eOfficeAction@uspto.gov
Subject: Private PAIR Correspondence Notification for Customer Number 107046

Jul 22, 2020 03:59:39 AM

Dear PAIR Customer:

WSGR / Align Technology , Inc.
650 Page Mill Road
Palo Alto, CA 94304
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 107046 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

Disclaimer:

The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

Application	Document	Mailroom Date	Attorney Docket No.
15834608	COCX	07/21/2020	22773-774.304

To view your correspondence online or update your email addresses, please visit us anytime at <https://sportal.uspto.gov/secure/myportal/privatepair>.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 10,456,217 B2
APPLICATION NO. : 15/834608
DATED : October 29, 2019
INVENTOR(S) : Ian Kitching, Alexander Dmitriev and Alexey Vishnevskiy

Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

Column 17, Line 26, Claim 11:

Please replace:

“that of the dental objects during treatment stages as”

With:

--of the dental objects during treatment stages as--

Column 17, Line 30, Claim 11:

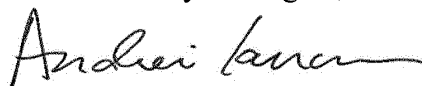
Please replace:

“objects between its respective initial an final positions;”

With:

--objects between its respective initial and final positions;--

Signed and Sealed this
Eleventh Day of August, 2020



Andrei Iancu
Director of the United States Patent and Trademark Office