

POWER OF ATTORNEY
CONCERNING INTERNATIONAL PATENT APPLICATIONS
PATENT COOPERATION TREATY

Appointment of Agent

The undersigned applicant(s) hereby appoints:

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John Love	Reg. No. 64,820	Tenley Krueger	Reg. No. 51,253
		Craig Roddy	Reg. No. 36,256
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As agents to act on its behalf before the competent International Authorities in connection with the following International Applications:

Application No.	Filing Date	Title	Halliburton Docket No.	Tumey Docket No.
PCT/US2015/020995	03/17/2015	Cementing Methods and Systems Employing a Smart Plug	2008-IP-018193	1560-033000
PCT/US2015/014433	02/04/2015	Fluid Monitoring Using Radio Frequency Identification	2012-IP-063457	1560-035500
PCT/US2015/014178	02/03/2015	Improved Radio Frequency Identification Tag	2012-IP-063460	1560-035600
PCT/US2015/013377	01/28/2015	Methods and Systems for Downhole Temperature Logging	2013-IP-075317	1560-036600

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PCT/US2014/048721	07/29/2014	Downhole Tool Anchoring Device	2013-IP-075958	1560-036700
PCT/US2014/049381	08/01/2014	Downhole Tool with Multi-Stage Anchoring	2013-IP-076302	1560-037000
PCT/US2014/073052	12/31/2014	Formation Logging Using Multicomponent Signal-Based Measurement of Anisotropic Permittivity and Resistivity	2013-IP-084650	1560-037900
PCT/US2014/056363	09/18/2014	Model-Based Pump-Down of Wireline Tools	2014-IP-085907	1560-038100
PCT/US2015/060688	11/13/2015	Downhole Logging Tool Using Resonant Cavity Antennas with Real-Time Impedance Matching	2014-IP-087634	1560-038700
PCT/US2015/063755	12/03/2015	Crosswell Tomography Using An Array of Optical Fiber Transducers	2014-IP-087635	1560-038800
PCT/US2015/066063	12/16/2015	Electrical Impedance Tomography Using a Switchable Array	2014-IP-087647	1560-038900
PCT/US2015/042812	07/30/2015	Imaging Subterranean Anomalies Using Cross-well Doppler Arrays	2014-IP-088323	1560-039100
PCT/US2015/060673	11/13/2015	Microstrip Antenna-Based Logging Tool and Method	2014-IP-088491	1560-039200
PCT/US2015/042811	07/30/2015	Imaging Subterranean Anomalies Using Acoustic Doppler	2014-IP-088847	1560-039400

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		Arrays and Distributed Acoustic Sensing Fibers		
PCT/US2015/039116	07/02/2015	Downhole Service Tool Employing a Tool Body with a Latching Profile and a Shifting Key with Multiple Profiles	2014-IP-088906	1560-039501
PCT/US2015/015760	02/13/2015	Downhole Fluid Characterization Methods and Systems Employing a Casing with a Multi-Electrode Configuration	2014-IP-090947	1560-039700
PCT/US2014/073024	12/31/2014	Modifying Magnetic Tilt Angle Using A Magnetically Anisotropic Material	2014-IP-091812	1560-039800
PCT/US2015/050764	09/17/2015	Using an Adjusted Drive Pulse in Formation Evaluation	2014-IP-092436	1560-039900
PCT/US2015/054671	10/08/2015	Determining Tubing Wall Thickness	2014-IP-093693	1560-047100
PCT/US2015/011905	01/19/2015	Downhole Acoustic Telemetry Module with Multiple Communication Modes	2014-IP-094464	1560-047200
PCT/US2015/050763	09/17/2015	Determining Permeability Based on Collar Responses	2014-IP-095695	1560-047300
PCT/US2015/016426	02/18/2015	Salt Tolerant	2014-IPM-	1560-047600

		Settling Retardant Proppants	097330	
PCT/US2015/010170	01/05/2015	Additive for Improving Homogeneity of Epoxy Resin and Cement Composites	2014-IPM-097471	1560-041000
PCT/US2015/011979	01/20/2015	Methods and Compositions for Stabilizing Fracture Faces during Hydraulic Fracturing Treatments	2014-IPM-097516	1560-041100
PCT/US2015/057818	10/28/2015	Transceivers with Annular Ring of High Magnetic Permeability Material for Enhanced Short Hop Communications	2014-IPM-097546	1560-041200
PCT/US2015/059607	11/06/2015	Methods and Systems Employing Windowed Frequency Spectra Analysis to Derive a Slowness Log	2014-IPM-097567	1560-041300
PCT/US2015/042420	07/28/2015	Method for Real-Time Assessment of Formation True Dip and Azimuth and Data Quality with Integration of MCI and Directional Logging Data	2014-IPM-097614	1560-041700
PCT/US2015/047738	08/31/2015	Use of Crosslinked Polymer System for Mitigation of Annular Pressure Buildup	2014-IPM-097664	1560-041800

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PCT/US2015/047224	08/27/2015	Superhydrophobic Additive	2014-IPM-097997	1560-042000
PCT/US2015/064249	12/07/2015	Modular Tool Having Combined EM Logging and Telemetry	2014-IPM-098115	1560-042100
PCT/US2015/022536	03/25/2015	Surface Excitation Ranging Methods and Methods Employing a Customized Grounding Arrangement	2015-IPM-098166	1560-042200
PCT/US2016/022144	03/11/2016	Bit-Scrambling in Differential Pulse Position Modulation	2015-IPM-098175	1560-042300
PCT/US2015/047725	08/31/2015	Method for Stimulation Treatment using Polymer-Surfactant Combination	2015-IPM-098204	1560-042700
PCT/US2015/046366	08/21/2015	Novel Thiol-Ene Based Resin System for Sand Consolidation and Methods Using Thereof	2015-IPM-098287	1560-042800
PCT/US2015/032666	05/27/2015	Corrosion Inhibition of HCl Treatment Fluids with Environmentally Compatible Solvent	2015-IPM-098325	1560-042900
PCT/US2016/021811	03/10/2016	Induction Logging Borehole Correction for Water-Based Mud	2015-IPM-098349	1560-043000
PCT/US2015/020485	03/13/2015	Overcoming the Retardation of Cement Hydration from Dispersing	2015-IPM-098368	1560-043100

		Agents used in Suspension of Additives		
PCT/US2015/022518	03/25/2015	Surface Excitation Ranging Methods and Systems Employing a Ground Well and a Supplemental Grounding Arrangement	2015-IPM-098424	1560-043200
PCT/US2015/046905	08/26/2015	Sugar Based Epoxy Resins with Enhanced Properties for Sand Consolidation in Subterranean Formations	2015-IPM-098478	1560-043300
PCT/US2015/038628	06/30/2015	Improved Vertical Proppant Suspension in Hydraulic Fractures	2015-IPM-098544	1560-043400
PCT/US2015/059606	11/06/2015	Downhole Logging Systems and Methods Employing Adjustably-Spaced Modules	2015-IPM-098575	1560-043500
PCT/US2016/014615	01/22/2016	Methods and Systems Employing a Gradient Sensor Arrangement for Ranging	2015-IPM-098579	1560-043600
PCT/US2016/015690	01/29/2016	Real Time on Location Crush and Conductivity Testing	2015-IPM-098640	1560-043700
PCT/US2015/052381	09/25/2015	Swellable Technology for Downhole Fluids Detection	2015-IPM-098710	1560-043800
PCT/US2015/067954	12/29/2015	Coiled Tubing	2015-IPM-	1560-043900

		Application Having Vibration-Based Feedback	098773	
PCT/US2016/032498	05/13/2016	Electromagnetic (EM) Defect Detection Methods and Systems Employing Deconvolved Raw Measurements	2015-IPM-099071	1560-044000
PCT/US2016/046857	08/12/2016	Method for In-Situ Calibration of Electromagnetic Corrosion Detection Tools	2015-IPM-099072	1560-044100
PCT/US2016/032212	05/12/2016	Electromagnetic (EM) Defect Detection Methods and Systems with Enhanced Inversion Options	2015-IPM-099095	1560-044200
PCT/US2016/055178	10/03/2016	Modeled Transmitter and Receiver Coils with Variable Tilt Angles for Formation Scanning	2015-IPM-099129	1560-044300
PCT/US2015/067807	12/29/2015	Self-Consolidating Micro-Proppant for Hydraulic Fracturing Applications	2015-IPM-099146	1560-044400
PCT/US2015/059075	11/04/2015	Conductivity-Depth Transforms of Electromagnetic Telemetry Signals	2015-IPM-099227	1560-044500
PCT/US2016/017970	02/15/2016	Methods of Selecting an Earth Model from a	2015-IPM-099268	1560-044600

		Plurality of Earth Models		
PCT/US2015/067803	12/29/2015	Wellbore Material Continuous Hardness Testing Methods and Tools	2015-IPM-099323	1560-044700
PCT/US2015/062101	11/23/2015	Switchable Multi-Antenna Fluid Sensing	2015-IPM-099387	1560-044800
PCT/US2017/017051	02/08/2017	Deploying Micro-Coiled Tubing	2015-IPM-099627	1560-044900
PCT/US2016/020465	03/02/2016	Controlling Proppant Flowback using Resin Chemistry for Acid Fracturing	2015-IPM-099643	1560-045000
PCT/US2016/036765	06/09/2016	Self-Suspending Material for Diversion Applications	2015-IPM-099703	1560-045100
PCT/US2016/035034	05/31/2016	Emulsified Fluid System for Fracturing Application	2016-IPM-099908	1560-045200
PCT/US2016/041376	07/08/2016	Treatment Fluids Comprising Recycled Drilling Cuttings and Methods of Use	2016-IPM-099947	1560-045300
PCT/US2016/038100	06/17/2016	Nano Materials Stabilized Emulsions as Fracturing Fluid System	2016-IPM-100009	1560-045400
PCT/US2016/038109	06/17/2016	Proppant Stabilized Water In Oil Emulsions For Subterranean Applications	2016-IPM-100010	1560-045500
PCT/US2016/040539	06/30/2016	Acid Diversion in Naturally Fractured Formations	2016-IPM-100075	1560-045600
PCT/US2016/046858	08/12/2016	Tool and Method	2016-IPM-	1560-045700

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		to Make High Resolution and High Penetration Measurement of Corrosion	100164	
PCT/US2016/053108	09/22/2016	Methods of Breaking Clay-Gel Nanoparticle	2016-IPM-100193	1560-045800
PCT/US2016/046864	08/12/2016	Multi-point In Situ Calibration of Electromagnetic Pipe Inspection Tools	2016-IPM-100250	1560-045900
PCT/US2016/051391	09/12/2016	Well Cementing with Water-Based Liquid Anti-Shrinkage Additives	2016-IPM-100356	1560-046000
PCT/US2017/040489	06/30/2017	Real-Time Self-Consistency Quality Indicators for Multi-Component Induction Tools	2016-IPM-100365	1560-046101
PCT/US2016/064038	11/29/2016	Emulsion-Based Breaker for Nanoparticle Clay Fluid	2016-IPM-100435	1560-046200
PCT/US2016/064027	11/29/2016	High Temperature Gravel Packing Fluid System	2016-IPM-100448	1560-046300
PCT/US2016/069653	12/31/2016	Breaker System for Emulsified Fluid System	2016-IPM-100550	1560-046400
PCT/US2016/060862	11/07/2016	Real Time Model for Diverter Drop Decision Using DAS and Step Down Analysis	2016-IPM-100584	1560-046500
PCT/US2016/060836	11/07/2016	Real Time Well Bashing Decision	2016-IPM-100586	1560-046600
PCT/US2017/039547	06/27/2017	Remote-Field Eddy Current Based Total Thickness	2016-IPM-100949	1560-046700

	Logging		
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Filed in the U.S. Receiving Office.

Houston, Texas, United States of America
(Place: City, State, & Country)

7/27/2017
(Date)

HALLIBURTON ENERGY SERVICES, INC.

By 

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REVIEWED
Legal BT
Date 7-27-17

PCT/US2015/020995, PCT/US2015/014433, PCT/US2015/014178, PCT/US2015/013377, PCT/US2014/048721, PCT/US2014/049381, PCT/US2014/073052, PCT/US2014/056363, PCT/US2015/060688, PCT/US2015/063755, PCT/US2015/066063, PCT/US2015/042812, PCT/US2015/060673, PCT/US2015/042811, PCT/US2015/039116, PCT/US2015/015760, PCT/US2014/073024, PCT/US2015/050764, PCT/US2015/054671, PCT/US2015/011905, PCT/US2015/050763, PCT/US2015/016426, PCT/US2015/010170, PCT/US2015/011979, PCT/US2015/057818, PCT/US2015/059607, PCT/US2015/042420, PCT/US2015/047738, PCT/US2015/047224, PCT/US2015/064249, PCT/US2015/022536, PCT/US2016/022144, PCT/US2015/047725, PCT/US2015/046366, PCT/US2015/032666, PCT/US2016/021811, PCT/US2015/020485, PCT/US2015/022518, PCT/US2015/046905, PCT/US2015/038628, PCT/US2015/059606, PCT/US2016/014615, PCT/US2016/015690, PCT/US2015/052381, PCT/US2015/067954, PCT/US2016/032498, PCT/US2016/046857, PCT/US2016/032212, PCT/US2016/055178, PCT/US2015/067807, PCT/US2015/059075, PCT/US2016/017970, PCT/US2015/067803, PCT/US2015/062101, PCT/US2017/017051, PCT/US2016/020465, PCT/US2016/036765, PCT/US2016/035034, PCT/US2016/041376, PCT/US2016/038100, PCT/US2016/038109, PCT/US2016/040539, PCT/US2016/046858, PCT/US2016/053108, PCT/US2016/046864, PCT/US2016/051391, PCT/US2017/040489, PCT/US2016/064038, PCT/US2016/064027, PCT/US2016/069653, PCT/US2016/060862, PCT/US2016/060836, PCT/US2017/039547