



Minesoft Citation Explorer Details

Date	14th February 2019
Family	63190646
Title	Monitoring Ground-Engaging Products For Earth Working Equipment
Probable Assignee	Esco Corp
Abstract Sample	A system and tool for monitoring ground-engaging products for earth

Full Abstract

A system and tool for monitoring ground-engaging products for earth working equipment that monitor characteristics such as part identification, presence, condition, usage, and/or performance of the products on earth working equipment used, for example, in mining, construction, and other environments. The monitoring tool includes or is supported by a mobile device that is separate from the earth working equipment. Supporting the monitoring tool on a mobile device can, e.g., provide unique vantage points to monitor the earth working equipment products, monitor the products inhibiting the operation of the earth working equipment or endangering personnel, closely approach areas of interest for secure and reliable gathering of information, monitor multiple earth working equipment, and/or be protected from the vibrations and impact shocks that can be associated with earth working equipment.

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Minesott Citation Explorer Metrics

	Forward	Backward
Publications	3	159
Families	3	146
Total Citations	3	187

Forward (Citing Assignees)

Assignee	Citations
Caterpillar Inc	2
Aker Tech Inc	1

Backward (Cited Ass

Assignee
Caterpillar Inc
Wirtgen Gmbh
Minetec Sa
Motion Metrics Int Corp
Esco Corp
Siemens Ind Inc
Harnischfeger Technologies...
Hitachi Construction...
Miller Int Ltd
Baker Hughes Inc
Esco Group Llc
Lujan Kraig M
Alberta Innovates
Novatek Ip Llc
General Electric Co
H And L Tooth Co
Ebert William
Ibm
Schlumberger Technology Cor
Brian Investments Pty Ltd
Winter Equipment Co
Hensley G H Ind Inc
Coal Ind Patents Ltd
Crane Cohasset Holdings Llc
J And L Fiber Services Inc

ignees)

Citations

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Backward Citations

Sort Order: Default

Publication	Family	
SU174996A	0	Cited once by the current family
US4181360A	1221357	Cited twice by the current family
US4001798A	1358542	Cited once by the current family
US4368919A	1410958	Cited once by the current family
US4499960A	1994049	Cited once by the current family
US4809794A	2218550	Cited once by the current family
US4399554A	2383791	Cited once by the current family
US4845763A	3068389	Cited once by the current family
US4932145A	3473440	Cited once by the current family
SU1254308A2	3627583	Cited once by the current family
US4407081A	3857129	Cited once by the current family
US4550512A	4893158	Cited once by the current family
US4604604A	5081661	Cited once by the current family
US5144762A	5134190	Cited twice by the current family
US4655082A	5251735	Cited once by the current family
US4709265A	5445119	Cited once by the current family
US4187626A	6538743	Cited once by the current family
US5926558A	8832283	Cited once by the current family
US4818990A	9061346	Cited once by the current family
US5850341A	9415057	Cited twice by the current family
US5701179A	10074245	Cited once by the current family
US5743031A	10768010	Cited 3 times by the current family
US5824965A	11198646	Cited once by the current family
US6363173BA	11376335	Cited once by the current family
US5401115A	11842181	Cited once by the current family
US6032390A	12102026	Cited once by the current family
US5555652A	12774538	Cited once by the current family
US6523586BA	13082730	Cited once by the current family
US6360850BA	15971570	Cited once by the current family
US6518519BA	19210623	Cited once by the current family
US5937550A	20877081	Cited once by the current family
US6497153BA	26941307	Cited once by the current family
US561758A	27088950	Cited once by the current family
EP1414002A1	27991230	Cited 3 times by the current family
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RU2274543C1	32778781	Cited once by the current family
US2008091520AA	32886970	Cited once by the current family
US7248154BB	33474142	Cited once by the current family
US2006265914AA	33892115	Cited 3 times by the current family
WO06128258A1	33973541	Cited once by the current family
US8024874BB	34245643	Cited once by the current family
US8312650BB	34576601	Cited twice by the current family
CN2913706Y	34710180	Cited once by the current family
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US8050489BB	41119265	Cited once by the current family
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US2012262708AA	44332409	Cited once by the current family
US8386196BB	44447097	Cited once by the current family
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US2014324364AA	44447097	Cited once by the current family
US8583313BB	44665018	Cited once by the current family
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US2010103260AA	44938684	Cited once by the current family
US8405721BB	44969354	Cited once by the current family
US8875424BB	45944364	Cited once by the current family
US8315802BB	46548790	Cited once by the current family
US2010215212AA	46626174	Cited once by the current family
US2012043980AA	46686778	Cited once by the current family
US2011309935AA	46705396	Cited once by the current family
US8087477BB	47544502	Cited once by the current family
US9310189BB	47632570	Cited once by the current family
US7874085BA	48169893	Cited once by the current family

US8406963BB	48343940	Cited once by the current family
US2014212846AA	48381650	Cited twice by the current family
US2012169876AA	48390684	Cited once by the current family
US2011162241AA	49157949	Cited once by the current family
US2012218411AA	49293665	Cited once by the current family
RU107986U1	49789000	Cited once by the current family
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US2013151170AA	50907236	Cited once by the current family
US2012098654AA	50958316	Cited once by the current family
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US2012136630AA	51167308	Cited once by the current family
AU2012215112AA	51722486	Cited once by the current family
WO12112587A1	51763344	Cited once by the current family
WO12116408A1	51891433	Cited once by the current family
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US2014168420AA	52226170	Cited once by the current family
US2013174453AA	52364021	Cited twice by the current family
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US2012300059AA	52414219	Cited once by the current family
US8843279BB	52531175	Cited once by the current family
US9145741BB	52545095	Cited once by the current family
US9030332BB	52600694	Cited once by the current family
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US2013049935AA	53123559	Cited once by the current family
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US2013082846AA	53423550	Cited once by the current family
SU132140A1	53886378	Cited once by the current family
US2013147633AA	54078363	Cited once by the current family
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US2015149027AA	59339825	Cited once by the current family
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US2015337522AA	60900323	Cited once by the current family
US9208555BA	61033008	Cited once by the current family
US9522415BB	61451487	Cited once by the current family
US2016178483AA	62729139	Cited once by the current family
US2016221618AA	63038772	Cited once by the current family
US9714923BB	63943610	Cited once by the current family
WO17017289A1	64824819	Cited once by the current family

Citation Category Key

A	Defining the state of the art and not prejudicing novelty or invent
X	Particularly relevant if taken alone
Y	Particularly relevant if combined with another document of the s;

Origin Code Key

APP	Cited by the Applicant
PRS	Origin Pre-Grant / Pre-Search
ISR	Originates from International Search Report
SEA	Originates from the Search report

Cited By	Categories	Origin Code	Year
US10011975BB		APP	1965
US2016237657AA, US10011975BB		PRS	1980
US10011975BB		APP	1977
US10011975BB		APP	1983
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WO16131015A3, US10011975BB	A	ISR	1992
US10011975BB		APP	1987
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US10011975BB		APP	1999
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WO16131007A1, WO16131015A3, US1001Y		ISR	2004
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US2016237657AA, US10011975BB		PRS	2006
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US10011975BB	APP	2016
US10011975BB	APP	2016
US10011975BB	APP	2017
US10011975BB	APP	2017

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Assignee

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Coal Ind Patents Ltd
Rockwell Int Corp
Coal Industry Patents Ltd
Mannesmann Ag
Acet Ltd
Gen Motors Corp
General Motors A Corp Of De Corp
Reeves Jr James B
Krivorozh Gornorudnyj Iginst P
J I Case Co
Felstet Rickerd M
Navistar Int A Corp Of De Corp
Hensley G H Ind Inc
Massachusetts Inst Technology
Intank Inc
Esco Corp
Asko Inc
Fernandes Roosevelt A
Caterpillar Inc
Microscan Systems Inc
H And L Tooth Co
Caterpillar Inc
Carnegie Mellon Univ
Cmi Terex Corp
Bierwith Robert
Ashby Alan
Nokian Tyres Plc
Dana Heavy Vehicle Systems Group Llc
Caterpillar Inc
Esco Corp
Battelle Energy Alliance Llc

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Hitachi Construction Machinery Co Ltd
Lujan Kraig M
Her Majesty Queen In Right Of Canada Represented I
Wirtgen Gmbh
J And L Fiber Services Inc
Agency Ind Science Techn
Laser Measurement Int Inc
Cutting Edges Replacement Parts Pty Ltd
Lujan Kraig M
Siemens Ind Inc

Frink Bentley D
Siemens Ind Inc
Siemens Ind Inc
Ibm
Dralle A S
Univ McGill
Caterpillar Inc
Ibm
Siemens Ind Inc
Reedhycalog Lp
Moscow State Technological Univ Stankin
Hitachi Construction Machinery Co Ltd
Meri Entsorgungstechnik Fur Die Papierindustrie Gm
Caterpillar Inc
Brian Investments Pty Ltd
Esco Corp
Esco Corp
Beijing Outeke New Technology
Alberta Innovates
Alberta Innovates
Southwest Research Inst
Caterpillar Inc
Caterpillar Inc
Endress And Hauser Wetzer Gmbh And Co Kg
Winter Equipment Co
Fraunhofer Ges
Miller Int Ltd
Combi Wear Parts Ab
Caterpillar Inc
Halliburton Co
Cqms Pty Ltd
Int Electronic Machines Corp
Cyberhawk Innovations Ltd
Wirtgen Gmbh
Wirtgen Gmbh
Wirtgen Gmbh
Int Electronic Machines Corp
Maxi Lift Inc
Caterpillar Inc
Aerial Vision Technology Inc
Motion Metrics Int Corp
Mollso Aps
Verizon Connect Telo Inc
Honeywell Int Inc
Brian Investments Pty Ltd
Southern Plant Hire Pty Ltd
Baker Hughes Inc
Airbus Operations Sas
Winter Equipment Co

Caterpillar Inc
Miller Int Ltd
Riegl Laser Measurement Systems Gmbh
Wangsness Eryk
Guangzhou Sat Infrared Technology Co Ltd
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General Electric Co
Of North Carolina At Charlotte Univ
Hitachi Ltd
Ebert William
Ebert William
General Electric Co
Universidad Catolica Del Norte 10
Qualcomm Inc
Encore Automation Pty Ltd
Wirtgen Gmbh
Eads Deutschland Gmbh
Esco Group Llc
Esco Group Llc
Siemens Ag
Motion Metrics Int Corp
Baker Hughes Inc
Motion Metrics Int Corp
Ingmat Ingenieros Mat Consultores Asoc S A
Minetec Sa
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Minetec Sa
Of Southern California Univ
Novatek Ip Llc
Novatek Ip Llc
Harnischfeger Technologies Inc
Harnischfeger Technologies Inc
Harnischfeger Technologies Inc
Baker Hughes Inc
Caterpillar Inc
Stil Faundri Kompani
Ots Int Inc
Harnischfeger Technologies Inc
Aurora Flight Sciences Corp
Schlumberger Technology Corp
Schlumberger Technology Corp
Continental Reifen Deutschland Gmbh
Crane Cohasset Holdings Llc
Identec Solutions Ag
Caterpillar Inc
Dammers Irwin D
Vermeer Mfg Co
Modern Technology Solutions Inc
State Farm Mutual Automobile Insurance Co

Caterpillar Inc
Caterpillar Inc
Caterpillar Inc
Honda Motor Co Ltd
Motion Metrics Int Corp
Motion Metrics Int Corp
Wirtgen Gmbh
Bell Helicopter Textron Inc
Man Truck And Bus Ag
Intelliview Technologies Inc
General Electric Co
Caterpillar Inc
Abb Schweiz Ag
Minesense Technologies Ltd
Caterpillar Inc
Caterpillar Inc
Caterpillar Inc
Metalogenia Res And Tech S L

Title

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Cutting Force Sensor
Self-Contained Sensor
Holder Assemblies For Sensitized Cutter Tools On Mining Machines
Method For Measuring The Weight Of Bulk Goods Loaded By A Hydraulic Excavator
Determining Of The Amount Of Material Delivered Each Operational Cycle Of A Shovel Loader
Method And Apparatus For Inspecting Engine Head Valve Retainer Assemblies For Missing Keys
Tool Wear Measurement By Machine Vision
Excavating Tooth Point And Adapter Assembly With Additional Wear Prevention Elements
Method Of Determining Weight Of Load Which Is Transferred By Excavator Bucket
Bucket Tooth Attachment Means
Excavator Bucket With Detachable Implements
Vapor Emitting Wear Indicator
Wear Indicating And Tooth Stabilizing Systems For Excavating Tooth And Adapter Assemblies
Mining Machine Having Vibration Sensor
Remote Control Mobile Surveillance System
Excavating Tool Having Hard-Facing Elements
Method And Apparatus For Monitoring And Inspecting Rotary Knives
Monitoring System For Power Lines And Right-Of-Way Using Remotely Piloted Drone
Method And Apparatus For Monitoring Material Removal Using Mobile Machinery
Method And System For Measuring Dimensions Of An Edge Of A Part
Digging Hardware Signaling Apparatus
Load Transfer And Loading Device With Weight Measurement
Incremental Recognition Of A Three Dimensional Object
Paver With Material Supply And Mat Grade And Slope Quality Control Apparatus And Method
Tooth Assembly For Excavation Bucket
Land Clearing Apparatus
Wear Indicator For Vehicle Tires
Progressive Brake Lining Wear Sensor
Method And Apparatus For Determining A Weight Of A Payload
Extensible Lock
Measuring Spatial Variability In Soil Characteristics

Method For Locating Construcion Machine, Position Plotting System, And Construction Machine
Electronic Method And Apparatus For Detecting And Reporting Dislocation Of Heavy Mining Equipment
Automated Excavation Machine
Road Milling Machine With Optimized Operation
Method And Apparatus For Measuring And Adjusting The Setting Of A Crusher
Method Of Image Processing For The Measurement Of Tool Wear
Apparatus For Determining Dimensions
Pin For Interlocking Components
Break-Away Motion Detector And Signal Transmitter
System And Method For Load Measuring By Motor Torque

Unmanned Aerial Vehicle Apparatus, System And Method For Retrieving Data
System And Method For Remotely Analyzing Machine Performance
System And Method For Remotely Analyzing Machine Performance
In-Situ Wear Indicator For Non-Selective Material Removal Systems
System For Grading Of Industrial Wood
Method And Device For Sensing Wear
Method And Apparatus To Detect Change In Work Tool
Method And Apparatus For Providing A Pluggable And Extendable J2Ee Architecture
Autonomous Loading Shovel System
Removable Equipment Housing For Downhole Measurements
Mobile Robot
Work Management System And Working Machine Equipped With The Same
Wear Detection By Transponder Destruction
Work Machine Having Boundary Tracking System
Tyne Replacement Indicator
Wear Assembly For Excavating Machines
Wear Assembly
Hydraulic Oil Cylinder Displacement Sensor Inside Lifting Eye
A System And A Method For Detecting A Damaged Or Missing Machine Part
System And A Method For Detecting A Damaged Or Missing Machine Part
Autoradiography-Based Differential Wear Mapping
System And Method To Identify And Track Rfid Tags
Excavator 3D Integrated Laser And Radio Positioning Guidance System
Method For Operating And/or Monitoring A Field Device, And Corresponding Field Device
Road Machinery Blade Wear Resistors
Device And Method For Non-Contact Recording Of Spatial Coordinates Of A Surface
Coupler With Coupling Status Sensors
Self-Sharpening, Auto-Signalling Wearing Part
Payload System That Compensates For Rotational Forces
Method And Apparatus To Improve Design, Manufacture, Performance And/or Use Of Well Tools
A Wear Indicating Apparatus And A Method Of Indicating Wear Of A Wear Plate
Inspection Using Three-Dimensional Profile Information
Unmanned Aerial Vehicle
Method For Determining The Wear State
Method For Determining The Wear State
Method For Determining The Wear State
Robotic Vehicle For Performing Rail-Related Actions
Material Conveyor System Container
Monitoring System
Wind Turbine Inspection
Method, System And Apparatus For Monitoring Loading Of A Payload Into A Load Carrying Container
End Bit For A Soil-Working Tool
Systems And Methods For Analyzing The Use Of Mobile Resources
System And Method For The Inspection Of Structures
Wear Sensor
Workplace Management System
Methods And Apparatuses For Measuring Drill Bit Conditions
Method And System For The Remote Inspection Of A Structure
Plow Blade And Moldboard Shoe

Implement Control System For A Machine
Coupler Alarm And Instructional Guide
Laser Scanning Device For Mounting On The Roof Rack Of A Vehicle
Method And System For Tool Wear Indicator
System And Method For Road Surface Defects Detection
Устройство Для Контроля И Компенсации Износа Режущей Кромки Резца
Tool Wear Quantification System And Method
Method And System For Remotely Inspecting Bridges And Other Structures
Sensor System, Computer, And Machine
Heavy Equipment Proximity Sensor
Enhanced Heavy Equipment Proximity Sensor
Method And System For Wind Turbine Inspection
Alarm System For Detecting Detachment Of Teeth And/or Adapter In Backhoe Equipment Blades
Varactorless Tunable Oscillator
Detection System
Drum Housing For A Working Drum Of A Construction Machine Or Mining Machine, Construction Machine Or Mining Machine
Method And System For Inspecting A Surface Area For Material Defects
Wear Assembly
Wear Assembly
Method To Inspect Components Of A Wind Turbine
Method And Apparatus For Determining A Spatial Positioning Of Loading Equipment
Cutting Elements Comprising Sensors, Earth-Boring Tools Having Such Sensors, And Associated Methods
Method And Apparatus For Generating An Indication Of An Object Within An Operating Ambit Of Heavy Loading Equipment
Dispositif Pour Detecter Au Moins Un Objet Enfoui Dans Un Amoncellement Et Procédé Mis En Oeuvre Dans Un Travaux
Rolled Steel Lip For An Excavator Bucket
Rolled Steel Lip For Excavator Bucket With Wear Indication Means
Rolled Steel Lip For An Excavator Bucket
Image-Based Crack Quantification
System For Acquiring Data From A Component
System For Acquiring Data From A Component
Metal Tooth Detection And Locating
Metal Tooth Detection And Locating
Metal Tooth Detection And Locating
Sensor-Enabled Cutting Elements For Earth-Boring Tools, Earth-Boring Tools So Equipped, And Related Methods
Sensor System And Method
Зуб К Ковшам Экскаваторов И Погрузочных Машин
Modular Data Acquisition For Drilling Operations
System And Method For Determining Saddle Block Shimming Gap Of An Industrial Machine
Tethered Aerial System For Data Gathering
Sensored Pick Assembly
Sensored Pick Assembly
Method For Determining The Tread Depth Of A Vehicle Pneumatic Tire
Image Monitoring And Display From Unmanned Vehicle
Method And Device For Detecting The Presence Of Stone Crushing Tools On Earthmoving Machines
Methods And Systems For Determining Part Wear Based On Digital Image Of Part
Mobile Film Studio And System
Systems And Methods For Sensing Wear Of Reducing Elements Of A Material Reducing Machine
Visual Inspection Apparatus, Secure One-Way Data Transfer Device And Methods Therefor
Methods And Systems For Capturing The Condition Of A Physical Structure

Erosion Monitoring System For Ground Engaging Tool
Erosion Monitoring System For Ground Engaging Tool
Tool Retention System
Methods And Systems For Shifting A Transmission Gear
Method And Apparatus For Performing A Fragmentation Assessment Of A Material
Method And Apparatus For Monitoring A Condition Of An Operating Implement In Heavy Loading Equipment
Wear Prognosis Method And Maintenance Method
Automated Magnetic Particle And Fluorescent Penetrant Defect Detection System
Wearing Part With A Wear Indicator And System For Wear Testing
Leak Detection
System And Method For Image Based Inspection Of An Object
System For Monitoring Machine Components Of Track-Type Mobile Machines
Method For Inspection Of Electrical Equipment
Mining Shovel With Compositional Sensors
Wear Sensing Device Having A Housing
Wear Sensing Device For A Carrier Roller
Topographic Wear Monitoring System For Ground Engaging Tool
Wear Sensor And Wear Element, And Corresponding Assembly And Use

ring Machine, As Well As Method For Monitoring The Condition Of A Working Drum Of A Construction M

Equipment
el Dispositif

Machine Or Mining Machine

Forward Citations

Sort Order: Default

Publication	Family	
US2017175363AA	66150275	Cites one publication in the current family
US2017300040AA	67233001	Cites one publication in the current family
WO18071727A1	69342027	Cites one publication in the current family

Origin Code Key

PRS	Origin Pre-Grant / Pre-Search
ISR	Originates from International Search Report

Cites	Categories	Origin Code	Year
US2016237640AA	-	PRS	2017
US2016237640AA	-	PRS	2017
WO16131007A1	-	ISR	2018

Assignee

Caterpillar Inc
Caterpillar Inc
Aker Tech Inc

Title

Method For Providing Images Of A Work Tool For A Machine
Data System And Method For Work Tool Of Machine
System For Monitoring Crops And Soil Conditions

NPL Citations

Family Member: US10011975BB

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FALSE
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FALSE
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