

1) Family number: 61323047 (US2017138715A)

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Title: BLADE GEOMETRY CHARACTERIZATION TOOL

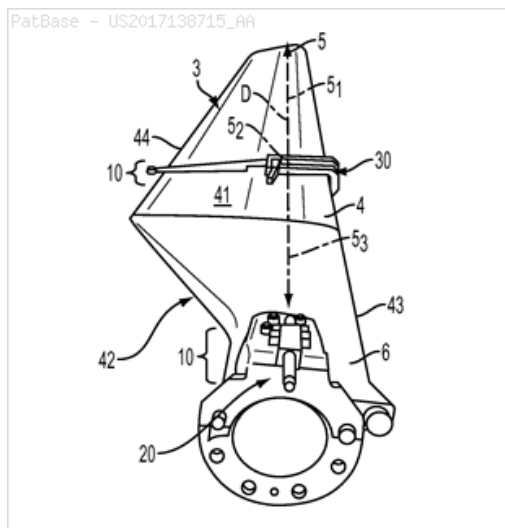
Abstract: A tool is provided for characterizing a blade geometry. The tool includes a first component attachable to a blade root of a blade and a second component attachable to leading and trailing edges of the blade at a blade tip and at multiple stations defined along a span-wise dimension of the blade. The second component is configured for characterization of a chord length of the blade at the blade tip and at the multiple stations. The first and second components are respectively configured for cooperative optical characterization of a sweep and a twist angle of the blade at the blade tip and at the multiple stations.

Classifications:

International (IPC 8-9): G01B11/24 G01B3/00 G01B3/02 G01B3/20 G01B5/02 G01B5/14 G01B5/24 (Advanced/Invention)

CPC: G01B3/004 G01B5/24 G01B5/02 G01B3/20 G01B3/02 G01B11/24

US: 1/1 33/228



Family:

Publication number	Publication date	Application number	Application date
EP3164669 A1	20170510	EP20150814287	20150624
EP3164669 A4	20180214	EP20150814287	20150624
US2017138715 AA	20170518	US20150323591	20150624
US10288399 BB	20190514	US20150323591	20150624
WO16003721 A1	20160107	WO2015US37371	20150624

Priority:

US20140019617P 20140701 US20150323591 20150624 WO2015US37371 20150624

Probable Assignee: SIKORSKY AIRCRAFT CORP

Assignee(s): (std): SIKORSKY AIRCRAFT CORP

Inventor(s): (std): LOFSTROM SVEN ROY ; DEANDA JOSE ; HIGBIE ROBERT D

Agent(s): KLUNKER SCHMITT NILSON HIRSCH; CANTOR COLBURN LLP; LEVY HOWARD I

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

2) Family number: 29484401 (US6012337A)

© PatBase

Title: Structural monitoring sensor system

Abstract: The present invention is directed to a system for continuous physical integrity monitoring of large civil structures such as bridges and high-rise buildings... wherein the relevant sensor data stream is generated continuously and transmitted to the data gathering location without the need for an incoming triggering signal of any kind; i.e., it is a one way transmission system. Specifically, it is a concept for an interlinked multi-parameter Early Warning Sensor system with a full time data management capability for structures. The invention is also directed to both the system construction, with its communication capability, and also designs of specific sensors applicable to the system as a whole. As a practical example of application of the present invention to a structure, the description in this application is directed primarily towards system applications for bridge integrity early warning systems.

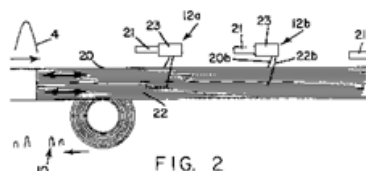
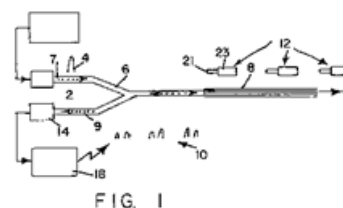
Classifications:

International (IPC 8-9): E01D19/00 E02D33/00 G01B11/16 G01D5/26 G01M11/08 G01M19/00 G01M5/00 G01N17/04 G01N21/88 (Advanced/Invention)

International (IPC 1-7): E01D19/00 E02D33/00 G01B11/16 G01L1/24 G01M19/00 G01M5/00 G01N17/00 G01N17/04 G01N19/08 G01N21/88 G01N29/04 G01N3/32 G02B6/00 G08B19/00 H04Q9/00

CPC: G01B11/16 G01D5/268 G01M5/0008 G01M5/0041 G01M5/0066 G01M5/0091 G01M11/081 G01M11/083 G01M11/086 G01M5/0033

European: G01B11/16 G01D5/26F G01M11/08A G01M11/08B



Family:

Publication number	Publication date	Application number	Application date
AU199718206 A1	19970717	AU19970018206	19961213
CA2240664 AA	19980615	CA19962240664	19961213
US6012337 A	20000111	US19980097268	19980615
US6181841 BA	20010130	US20000481289	20000111
US6487914 BA	20021203	US20010772182	20010129
US6647161 BA	20031111	US20020293811	20021113
WO9723772 A1	19970703	WO1996US20015	19961213

Priority:

US19950003640P	19950914	US19950008687	19951215	US19950008687P	19951215
US19960011164P	19960205	US19960011164	19960205	WO1996US20015	19961213
US19960050268P	19961215	US19970050268P	19970620	US19970063041P	19971024
US19980080487P	19980402	US19980097268	19980615	US20000481289	20000111
US20010772182	20010129	US20020293811	20021113		

Probable Assignee: EFS INT SA

Assignee(s): (std): HODGE MALCOLM H ; STRUCTURAL INTEGRITY MONITORIN ; MALCOLM H HODGE

Assignee(s): MATERIAL TECHNOLOGIES INC ; STRUCTURAL INTEGRITY MONITORING SYSTEMS INC ; STRUCTURAL INTEGRITY MONITORING SYSTEMS ; PALISADES CAPITAL LLC ; KREUZFELD LTD ; CORPORATE LEGAL SERVICES LLP ; EFS INT SA

Inventor(s): (std): HODGE MALCOLM H

Inventor(s): MALCOLM H HODGE

Agent(s): RICHES MCKENZIE AND HERBERT LLP

Designated states: AL AM AT AU AZ BA BB BE BF BG BJ BR BY CA CF CG CH CI CM CN CU CZ DE DK EE ES FI FR GB GE GR HU IE IL IS IT JP KE KG KP KR KZ LC LK LR LS LU LV MC MD MG MK MN MW MX NL NO NZ PL PT RO RU SD SE SG SI SK SZ TJ TM TR TT UA UG US UZ VN

3) Family number: 42768428 (US2010101335A)

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Title: STRAIN SENSORS

Abstract: A method of monitoring strain on a helicopter rotor blade that has several structural components comprises locating at least three strain sensors **2a**, **2b**, **2c** on one of the structural components of the rotor blade, the positions of the strain sensors defining a plane transverse to the longitudinal direction of the rotor blade and resolving strain signals from the three strain sensors into strain measurements in two orthogonal directions.

Classifications:

International (IPC 8-9): B64C27/00 G01B11/16 G01L1/22

G01L1/24 (Advanced/Invention);

G01L1/24 (Advanced/Non-invention)

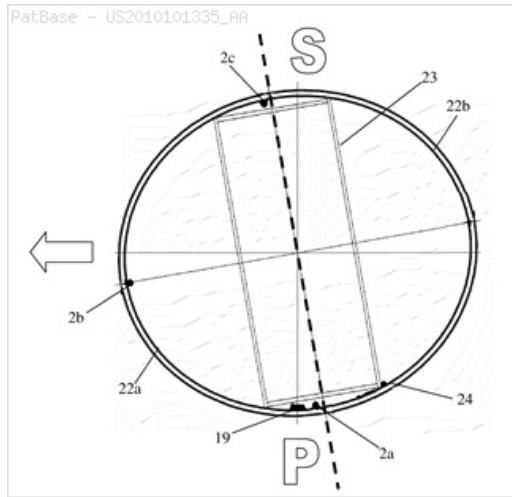
CPC: B64C27/006 G01B11/18 G01L5/161 G01M5/0016 B64C27/008

G01B11/165 G01L1/246

European: B64C27/00D G01B11/18 G01L1/24B4 G01L5/16B

G01M5/00C

US: 73/800 73/800S 73/862.045 73/862.045P



Family:

Publication number	Publication date	Application number	Application date
GB200819777 A0	20081203	GB20080019777	20081029
GB2464929 A1	20100505	GB20080019777	20081029
GB2464929 B2	20100922	GB20080019777	20081029
US2010101335 AA	20100429	US20090608341	20091029

Priority:

GB20080019777 20081029

Probable Assignee: INSENSYS LTD

Assignee(s): (std): CAESLEY ROGER ; INSENSYS LTD ; VOLANTHEN MARK

Assignee(s): INSENSYS LIMITED

Inventor(s): (std): VOLANTHEN MARK ; CAESLEY ROGER ; CAESLEY ROGER

Inventor(s): MARK VOLANTHEN ; ROGER CAESLEY

Agent(s): RENNER OTTO BOISSELLE AND SKLAR LLP

4) Family number: 33402530 (US2009279323A)

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Title: HEAT DISTRIBUTION IN A DISTRIBUTED LIGHTING APPARATUS

Abstract: Described herein is an apparatus which is, under a range of atmospheric conditions, capable of maintaining the emission of light at a point remote from a light source. Notably, the apparatus is able to heat and distribute a fluid, and by doing so, prevents condensation and ice from forming which could hamper the emission of light. The apparatus comprises a light source and a light emitter, with a light conduit and a fluid conduit running between. A method for using such apparatus is also described.

Classifications:

International (IPC 8-9): F03D11/00 F21S2/00 F21V29/00 F21V5/00

G02B6/00 G02B6/44 (Advanced/Invention);

F21Y101/02 (Advanced/Non-invention);

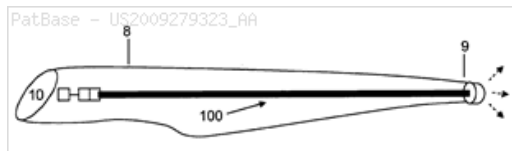
F03D11/00 F21S2/00 F21V29/00 F21V5/00 G02B6/00

G02B6/44 (Core/Invention)

CPC: G02B6/0008 G02B6/4496 Y02E10/72 F03D80/60 F03D80/40 F03D80/10

European: F03D11/00 F03D11/00F G02B6/00L4E G02B6/44C13 R05B260/20 Y02E10/72D Y02T50/67F

US: 362/562 362/580 362/582 362/582P 362/96



Family:

Publication number	Publication date	Application number	Application date
EP2041609 A1	20090401	EP20070766438	20070712
GB200614036 A0	20060823	GB20060014036	20060714
JP2008546166 T2	20081218	JP20080524598T	20070712
JP4634508 B2	20110216	JP20080524598T	20070712
JP4634508 B2	20110223	JP20080524598T	20070712
JP4634508 B2	20110223	JP20080524598T	20070712
JP4634508 B2	20110216	JP20080524598T	20070712
JP4634508 B2	20110223	JP20080524598T	20070712
US2009279323 AA	20091112	US20070910592	20070712
US7780328 BB	20100824	US20070910592	20070712
WO08007142 A1	20080117	WO2007GB50396	20070712

Priority:

EP20060253699 20060714 GB20060014036 20060714 EP20070766438 20070712
WO2007GB50396 20070712

Probable Assignee: BAE SYSTEMS PLC

Assignee(s): (std): BAE SYSTEMS PLC ; FOOTE PETER DAVID ; LAYCOCK LESLIE CHARLES ; STACE CHRISTOPHER

Inventor(s): (std): FOOTE PETER DAVID ; LAYCOCK LESLIE CHARLES ; STACE CHRISTOPHER

Agent(s): ALPASS JAMES HAMPDEN; BUCHANAN INGERSOLL AND ROONEY PC; BAE SYSTEMS PLC GROUP IP DEPT

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN

IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MT MW MX
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TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

5) Family number: 30151576 (US4887087A)

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Title: Method of displaying detected information about a rotating mass

Abstract: In a method of detecting the deflection of the blades 13 of a helicopter rotor as it rotates, a beam 14 of radiation from a transmitter/receiver 11 encounters the tips of the rotating blades which send reflected signals to the receiver. The phase difference due to deflection of the blade tip can be used to give a measure of the deflection of each blade, and that can be displayed graphically as shown in FIGS. 7-10 for the various blades at various speeds. In a related method of measuring deflections of the blades 111 for a tail rotor, a laser beam transmitter 16 in Fig. 14 has its reflected beam 122, 123 from an undeflected blade 111 or a deflected blade 111' received by a particular receiver in a linear array 119 of receivers so that the particular receiver gives an indication of the amount of deflection.

Classifications:

International (ipc 8-9): B64C27/04 B64D45/00 G01B11/16
G01B15/00 G01B15/06 G01B17/04 G01M17/00

G06G7/70 (Advanced/Invention);

G01B11/16 G01B17/04 (Core/Invention)

International (ipc 1-7): B64C19/00 B64C27/04 B64D45/00

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G01S13/00 G01S13/88 G01S7/04 G06G7/70

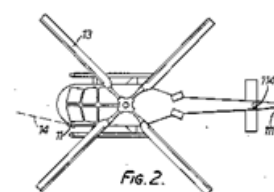
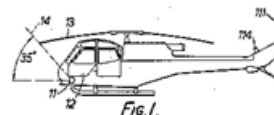
CPC: G01B11/16 G01B17/04

European: G01B11/16 G01B17/04

US: 342/127 342/61

PatBase - US4887087_A

U.S. Patent Dec. 12, 1989 Sheet 1 of 7 4,887,087



Family:

Publication number	Publication date	Application number	Application date
CA1212771 A1	19861014	CA19830423661	19830315
DE3382397 D1	19911010	DE19833382397	19830315
DK99383 A	19830917	DK19830000993	19830228
DK99383 A0	19830228	DK19830000993	19830228
EP0089228 A2	19830921	EP19830301422	19830315
EP0089228 A3	19870422	EP19830301422	19830315
EP0089228 B1	19910904	EP19830301422	19830315
GB2116803 A1	19830928	GB19820011627	19820422
GB2116804 A1	19830928	GB19820011646	19820422
GB2116804 B2	19860326	GB19820011646	19820422
JP1684726 C3	19920731	JP19830042488	19830316
JP3045765 B4	19910712	JP19830042488	19830316
JP58168909 A2	19831005	JP19830042488	19830316
KR19840004018 A	19841006	KR19830001044	19830316
KR840004018 A	19841006	KR19830001044	19830316
NO172155 B	19930301	NO19830000905	19830315
NO172155 C	19930609	NO19830000905	19830315
NO830905 A	19830919	NO19830000905	19830315
NO830905 L	19830919	NO19830000905	19830315
US4887087 A	19891212	US19830475252	19830314
US4887087 B1	19920324	US19830475252	19830314

Priority:

GB19820007574 19820316

GB19820007575 19820316

GB19820011646 19820422

CA19830423661 19830315

Probable Assignee: HELITUNE LTD

Assignee(s): (std): MAIKURO CONTROL TEKUNOROJII LT ; MAIKURO KONTOROORU TEKUNOROJII ; MICRO CONTROL TECH LTD ; MICRO CONTROL TECHNOLOGY LTD

Assignee(s): STEWART HUGHES LTD ; ULTRA ELECTRONICS LTD ; MICRO CONTROL TECHNOLOGY LTD MALVERN WORCESTERSHIRE ; MICRO CONTROL TECHNOLOGY LIMITED ; MICRO CONTROL TECHNOLOGY LTD MALVERN WORCESTERSHIRE GB ; MOIR CHRISTOPHER I ; MAIKURO KONTOROORU TEKUNOROJII LTD ; MAIKURO CONTROL TEKUNOROJII LTD ; CLEARWATER WALTER A ; HELITUNE LTD

Inventor(s): (std): UORUTAA ARAN KURYAUOOTAA ; UORUTAA ARAN KURIYAUOOTAA ; KURISUTOOFUAA AIAN MOA ;

MOIR CHRISTOPHER IAN ; CLEARWATER WALTER ALLAN ; MOIR CHRISTOPHER IAN ; CLEARWATER WALTER A ; MOIR CHRISTOPHER I ; WALTER A CLEARWATER

Inventor(s): WALTER ALLAN CLEARWATER ; CHRISTOPHER IAN MOIR ; CLEARWATER WALTER ALLAN DROITWICH WORCESTERSHIRE GB ; CLEARWATER WALTER ALLAN DROITWICH WORCESTERSHIRE G ; MOIR CHRISTOPHER IAN MALVERN LINK WORCESTERSHIRE GB

Agent(s): FETHERSTONHAUGH AND CO

Designated states: DE FR GB IT NL SE

6) Family number: 24047663 (US4604526A)

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Title: POSITION DETECTOR

Abstract: A detector for checking the symmetry of a helicopter rotor while it is rotating has a scanner (11) which scans vertically a field of view (15) and the view is interrupted by a vertical strip on the blade tip (16). A slot (18) in the strip gives a characteristic signal as at (L2). The position of the signal (L2) in a scanning cycle gives an indication of the height of the blade tip and also the circumferential spacing between blades.

Classifications:

International (IPC 8-9): B64C27/00 G01B11/00 G01B11/16 G01M5/00 (Advanced/Invention);

B64C27/00 G01B11/00 G01B11/16 G01M5/00 (Core/Invention)

International (IPC 1-7): B64C G01B11/00 G01C G01M5/00 G01N21/86 G01S5/00

CPC: B64C27/008 G01B11/00 G01B11/16

European: B64C27/00E G01B11/00 G01B11/16

US: 250/559.3 250/561 33/263 33/286 356/400

PatBase - US4604526_A

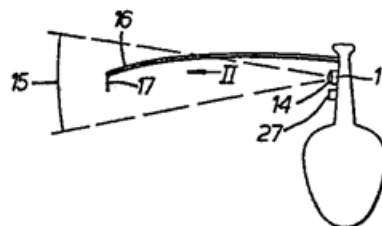


FIG. 1.

Family:

Publication number	Publication date	Application number	Application date
CA1227330 A1	19870929	CA19830440840	19831109
DE3373207 D1	19871001	DE19833373207	19831109
DK165427 B	19921123	DK19830005141	19831110
DK514183 A	19840511	DK19830005141	19831110
DK514183 A0	19831110	DK19830005141	19831110
EP0112031 A1	19840627	EP19830306842	19831109
EP0112031 B1	19870826	EP19830306842	19831109
JP1844102 C3	19940512	JP19830210040	19831110
JP5047762 B4	19930719	JP19830210040	19831110
JP59135305 A2	19840803	JP19830210040	19831110
KR19840006854 A	19841203	KR19830005281	19831108
KR840006854 A	19841203	KR19830005281	19831108
NO834090 A	19840511	NO19830004090	19831109
NO834090 L	19840511	NO19830004090	19831109
US4604526 A	19860805	US19830550479	19831109
USRE33097 E	19891017	US19880194551	19880516

Priority:

GB19820032096 19821110 CA19830440840 19831109

Probable Assignee: ULTRA ELECTRONICS LTD

Assignee(s): (std): HELITUNE LIMITED ; HELITUNE LTD ; MAIKURO CONTROL TEKUNOROJII LT ; MAIKURO KONTOROORU TEKUNOROJII ; MICRO CONTROL TECH LTD ; MICRO CONTROL TECHNOLOGY LTD

Assignee(s): MICRO CONTROL TECHNOLOGY LIMITED ; MOIR CHRISTOPHER I ; ULTRA ELECTRONICS LTD ; MAIKURO KONTOROORU TEKUNOROJII LTD ; MAIKURO CONTROL TEKUNOROJII LTD

Inventor(s): (std): MOIR CHRISTOPHER IAN ; MOIR CHRISTOPHER I ; KURISUTOFUAA IIAN MOA

Inventor(s): CHRISTOPHER IAN MOIR

Agent(s): FETHERSTONHAUGH AND CO

Designated states: DE FR GB IT NL SE

7) Family number: 60004671 (US2015219523A)

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Title: ROTOR STATE SENSOR SYSTEM

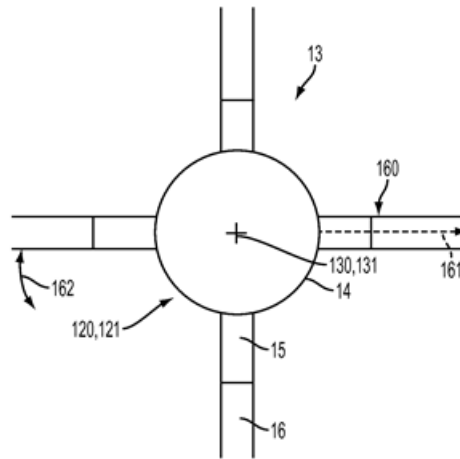
Abstract: A rotor state sensor system is provided for use with a rotor including a hub, a hub arm and a blade coupled to the hub by the hub arm. The sensor system includes sensors disposed on the hub arm to define a first plane, which emit emissions and receive reflected emissions, and which generate a signal according to the received reflected emissions, reflector plates disposed on the blade which define a second plane at locations where the emissions from the sensors are incident on the reflector plates and from which the reflected emissions are reflected towards the sensors and a computing device which receives the signal from the sensors, determines relative orientations of the first and second planes according to the received signal and determines a condition of the rotor based on the determined relative orientations.

Classifications:

International (IPC 8-9): B64C27/57 G01B11/26 G01M13/00 G01M17/00 G01N21/55 (Advanced/Invention)

CPC: B64C27/57 G01M13/00 G01M17/00 G01N21/55

US: 1/1 701/3 702/33

**Family:**

Publication number	Publication date	Application number	Application date
DE602014011919 D1	20170831	DE201460011919T	20141203
EP2905224 A1	20150812	EP20140196097	20141203
EP2905224 B1	20170719	EP20140196097	20141203
US2015219523 AA	20150806	US20140173374	20140205
US9482595 BB	20161101	US20140173374	20140205

Priority:

US20140173374 20140205 EP20140196097 20141203

Probable Assignee: SIKORSKY AIRCRAFT CORP**Assignee(s):** (std): SIKORSKY AIRCRAFT CORP**Assignee(s):** SIKORSKY AIRCRAFT STRATFORD CORP**Inventor(s):** (std): WHITE MATTHEW A ; KING JOSHUA ; KELLNER AARON ; DEMPSEY PATRICK J**Inventor(s):** WHITE MATTHEW A MILFORD ; DEMPSEY PATRICK J NEW HAVEN ; KELLNER AARON BLOOMFIELD ; KING JOSHUA HAMDEN**Agent(s):** SCHMITT NILSON SCHRAUD WAIBEL WOHLFROM PATENTANWAELTE PARTNERSCHAFT MBB; KLUNKER SCHMITT NILSON HIRSCH; CANTOR COLBURN LLP**Designated states:** AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL NO PL PT RO RS SE SI SK SM TR**8) Family number: 68076743 (US2018003161A)**

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Title: UNMANNED AERIAL VEHICLE WIND TURBINE INSPECTION SYSTEMS AND METHODS

Abstract: Methods, systems and apparatus, including computer programs encoded on computer storage media for an unmanned aerial vehicle (UAV) wind turbine inspection system. One of the methods includes obtaining first sensor information by an unmanned aerial vehicle (UAV), the first sensor information describing physical aspects of a wind turbine, including one or more blades of the wind turbine. An orientation of the blades of the wind turbine are determined based on the obtained first sensor information. A flight pattern for the UAV to inspect the blades of the wind turbine is determined, the flight pattern being based on the determined orientation of the blades. Each of the blades of the wind turbine is inspected by the UAV according to the determined flight pattern, the inspection including obtaining second sensor information describing the blades of the wind turbine.

Classifications:**International (IPC 8-9):** B64C39/02 F03D17/00 G01C23/00

G06T7/00 (Advanced/Invention)

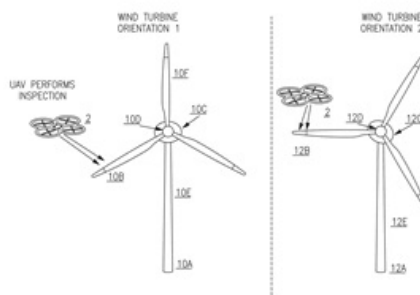
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F03D17/00 F05B2270/8041 Y02E10/726 F05B2240/30 F05B2260/80

G06T7/0004 G06T2207/10032 G06T2207/30164 G06T2207/30244

US: 1/1 348/144

PatBase - US2018003161_AA

**Family:**

Publication number	Publication date	Application number	Application date
US2018003161 AA	20180104	US20170637952	20170629
WO18005882 A1	20180104	WO2017US40131	20170629

Priority:

US20160357274P 20160630 US20170637952 20170629

Probable Assignee: UNMANNED INNOVATION INC**Assignee(s):** (std): UNMANNED INNOVATION INC

Assignee(s): KNOBBE MARTENS OLSON AND BEAR LLP
Inventor(s): (std): MICHINI BERNARD J ; BLANC PAQUES FABIEN
Agent(s): ALTMAN DANIEL E
Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DJ DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JO JP KE KG KH KM KN KP KR KW KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

9) Family number: 30901846 (US2004174542A)

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Title: OPTICAL MEASUREMENT DEVICE AND METHOD

Abstract: Devices and methods according to the invention allow measurement of deformation of objects by installing on them one or several of lasers or other light sources and a corresponding number of arrays of photo-sensors. The light beams may be shaped so that the response of the sensors may be processed to calculate the bend and twist of the object. By positioning the lasers and sensors in sequence, a cumulative calculation of the deformation is made possible. The applications include anemometry, a variety of blades, buildings, towers and other structures where deformation needs to be measured.

Classifications:

International (IPC 8-9): G01B11/03 G01B11/16

G01B11/24 (Advanced/Invention);

G01B11/03 G01B11/16 (Core/Invention)

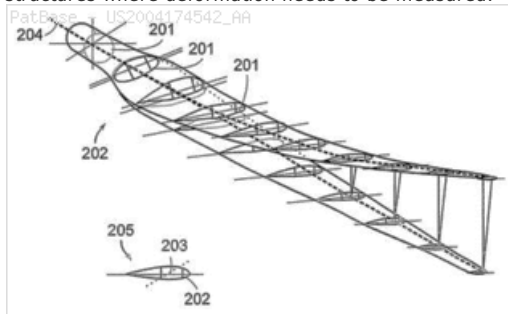
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G01N21/00 G01P5/02

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European: G01B11/16 G01B11/16F Y02B10/30

US: 356/601 356/622 356/622P



Family:

Publication number	Publication date	Application number	Application date
US2004174542 AA	20040909	US20030721773	20031125
US7403294 BB	20080722	US20030721773	20031125
WO04088285 A2	20041014	WO2004US06421	20040303
WO04088285 A3	20041223	WO2004US06421	20040303

Priority:

US20030452745P 20030307 US20030721773 20031125

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Agent(s): HAMILTON BROOK SMITH AND REYNOLDS PC

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NA NE NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

10) Family number: 49248913 (US2011178727A)

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Title: CRAWLING AUTOMATED SCANNER FOR NON-DESTRUCTIVE INSPECTION OF AEROPACE STRUCTURAL ELEMENTS

Abstract: Apparatus for non-destructive inspection of structural elements or workpieces, in particular those having an airfoil configuration, that moves a scanning sensor across the width (span) of a structural element or workpiece for the purpose of detecting structural damage. In one embodiment, the apparatus simultaneously traverses the length (chord) of the structural element or workpiece. In another embodiment, the apparatus includes a guide rail that encompasses the structural element or workpiece and the scanning sensor travels along the guide rail from a first location at an upper rear region, to the front, of the structural element or workpiece, and then around the leading edge toward the lower rear region. The apparatus includes a processor and a display device to display the processed, sensed, information.

Classifications:

International (IPC 8-9): B25J11/00 B25J5/00 B25J9/02 B64F5/00

F01D5/00 G01B21/20 G01B5/00 G01B5/28 G01D21/00 G01L11/02

G01M5/00 G01N27/90 G01N29/04 G01N29/22 G01N29/265

G01N29/28 G01N3/00 G01N37/00 G01S15/89 (Advanced/Invention);

B25J11/00 (Advanced/Non-invention)

CPC: G01L11/025 G01N27/90 G01N29/28 G01N2291/0422

G01N2291/106 B64F5/0045 Y10S901/01 B25J5/00 B25J9/02

B25J11/005 B25J11/008 B64F5/60 F01D5/005 G01M5/0016

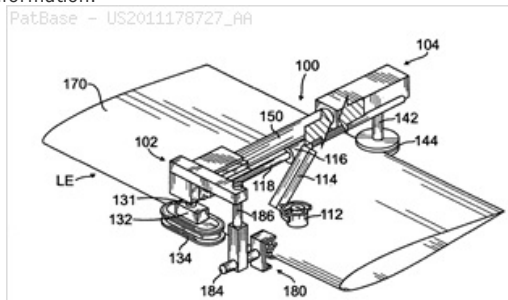
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Y02T50/672 Y02T50/673

European: G01M5/00C G01M5/00Q G01N29/04F G01N29/22M

G01N29/265 S01N291/269E

US: 1/1 700/245 702/38 702/38P 702/39 702/39S 73/865.8 73/866.5 901/1



Family:

Publication number	Publication date	Application number	Application date
CA2726972 AA	20110719	CA20112726972	20110107
CA2726972 C	20180227	CA20112726972	20110107

DE602011000142 D1	20121018	DE201160000142T	20110118
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US8347746 BB	20130108	US20100657424	20100119
US9643313 BB	20170509	US20120663709	20121030

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US20100657424 20100119 CA20112726972 20110107 EP20110151274 20110118
US20120663709 20121030 US20160222028 20160728

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