

1) Family number: 68589003 (US2019277248A)

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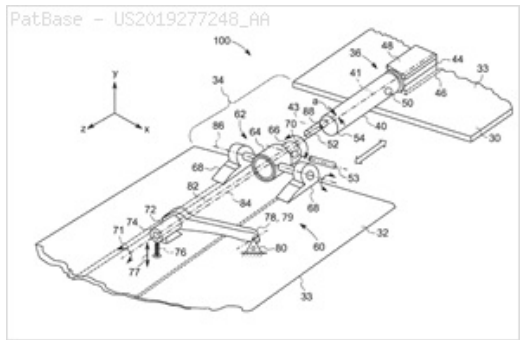
Title: AERO-ELASTICALLY TAILORED WIND BLADE TIP JOINT

Abstract: A wind turbine blade includes a first blade segment and a second blade segment extending in opposite directions from a chord-wise joint. The first blade segment includes a beam structure extending lengthways that structurally connects with the second blade segment at a receiving section, wherein the beam structure forms a portion of an internal support structure and includes a shear web connected with a suction side spar cap and a pressure side spar cap. The present technology also includes a joint rod located at a first end of the beam structure for connecting with the receiving section of the second blade segment to form a coupling joint about a joint axis. The coupling joint is coupled to an adjustable elastic support. The receiving section may further include a torque coupling positioned offset from the joint axis, such that a bending motion of the beam structure automatically induces a twist motion. A method of assembling the wind turbine blade is additionally disclosed.

Classifications:

International (IPC 8-9): F03D1/06 F03D7/02 (Advanced/Invention)

CPC: F03D1/0675 F03D7/0228 F05B2240/302 Y02E10/721 Y02E10/723



Family:

Publication number	Publication date	Application number	Application date
EP3497322 A1	20190619	EP20160753804	20160811
US2019277248 AA	20190912	US20160318644	20160811
WO18031024 A1	20180215	WO2016US46608	20160811

Priority:

US20160318644 20160811 WO2016US46608 20160811

Probable Assignee: GENERAL ELECTRIC CO

Assignee(s): (std): GEN ELECTRIC

Assignee(s): GENERAL ELECTRIC CO

Inventor(s): (std): MERZHAUSER THOMAS ; HERRIG ANDREAS

Agent(s): ZBM PATENTS ZEA BARLOCCI AND MARKVARDSEN; COLEMAN K BROOKE ET AL

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: 56488005 (US2016090963A)

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Title: ROTOR BLADE TIP

Abstract: A rotor blade of a wind energy plant having a main component of the blade and a blade tip, whereby the blade tip is releasably attached to the main component by means of a connection device and the connection device has a tip section attached to the blade tip and a base section attached to the main component of the blade to receive the tip section, whereby the tip section has at least one fastener that extends to the base section for attaching the tip section to the base section, and the fastener for performing the attachment can be actuated through an opening in the surface of the blade tip.

Classifications:

International (IPC 8-9): F03D F03D1/00 F03D1/06 F03D11/00

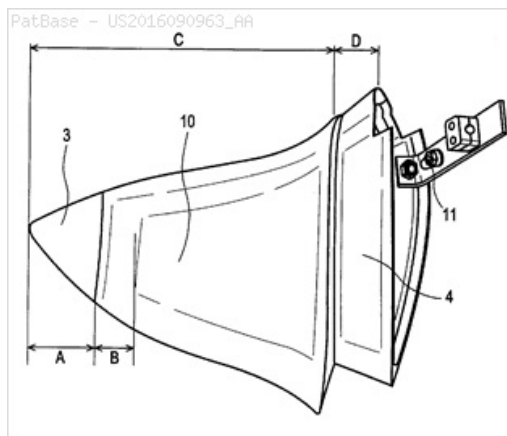
F03D11/04 F03D13/00 F03D13/10 F03D13/20 F03D80/00

F03D80/30 (Advanced/Invention)

CPC: F05B2240/302 Y02E10/722 F03D1/0675 F03D80/30

F05B2230/60 F05B2280/6003 Y02E10/721 Y02P70/523 F03D1/0633

US: 29/889.71 416/223R



Family:

Publication number	Publication date	Application number	Application date
AR093502 AA	20150610	AR2013P104208	20131115
AU2013347012 AA	20150521	AU20130347012	20131106
AU2013347012 BB	20160818	AU20130347012	20131106
AU2013347012 CA	20170406	AU20130347012	20131106
BR112015011013 A2	20170711	BR20151111013	20131106
CA2889644 AA	20150427	CA20132889644	20131106
CA2889644 C	20181127	CA20132889644	20131106
CL2015001305 A1	20151002	CL20150001305	20150514
CL58402 B	20200122	CL20150001305	20150514
CN104797815 A	20150722	CN201380059951	20131106
CN104797815 B	20180615	CN201380059951	20131106
DE102013205965 A1	20141030	DE201310205965	20130404
DE502013011976 D1	20190124	DE201350011976T	20131106
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EP2920460 B1	20190102	EP20130786286	20131106
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KR20150082637 A	20150715	KR20157015770	20131106
MX2015005790 A1	20151216	MX20150005790	20131106
NZ707643 A	20160729	NZ20130707643	20131106
PT2920460 T	20190424	PT20130786286T	20131106
RU2015122449 A	20170110	RU20150122449	20131106
RU2608453 C2	20170118	RU20150122449	20131106
TW201443335 A	20141116	TW20130141318	20131113
TWI620869 B	20180411	TW20130141318	20131113
US2016090963 AA	20160331	US20130443343	20131106
WO14075976 A1	20140522	WO2013EP73188	20131106
ZA201502827 A	20180328	ZA20150002827	20150424

Priority:

DE201210220936 20121115 DE201310205965 20130404 WO2013EP73188 20131106
EP20130786286 20131106

Probable Assignee: WOBVEN PROPERTIES GMBH

Assignee(s): (std): WOBVEN PROPERTIES GMBH

Assignee(s): HOFFMANN ALEXANDER ; VOBVEN PROPERTIZ GMBKH ; CLEMENS CHRISTIAN ; DULLE DENNIS

Inventor(s): (std): ALEXANDER HOFFMANN ; CHRISTIAN CLEMENS ; CLEMENS CHRISTIAN ; DULLE DENNIS ; HOFFMAN ALEXANDER ; HOFFMANN ALEXANDER ; KHOFFMANN ALEKSANDER ; CLEMENS KRISTIAN ; DENNIS DULLE

Inventor(s): DULLE ALEXANDER ; CLEMENS DENNIS

Agent(s): PIZZEYS; PIZZEYS PATENT AND TRADE MARK ATTORNEYS PTY LTD; OYEN WIGGS GREEN AND MUTALA LLP; SARGENT AND KRAHN; EISENFUEHR SPEISER PATENTANWAELTE RECHTSANWAELTE PARTGMBB; EISENFUEHR SPEISER; ROEB MARIA; KATO ASAMICHI; UCHIDA KIYOHITO

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

3) Family number: 63304005 (DE102015002015A1)

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Title: ROTORBLATTENTEISUNGSVORRICHTUNG UND VERFAHREN ZUM ENTEISEN EINES ROTORBLATTS
ROTORBLATTENTEISUNGSVORRICHTUNG AND METHOD FOR DE-ICING OF A ROTOR BLADE (Machine translation)

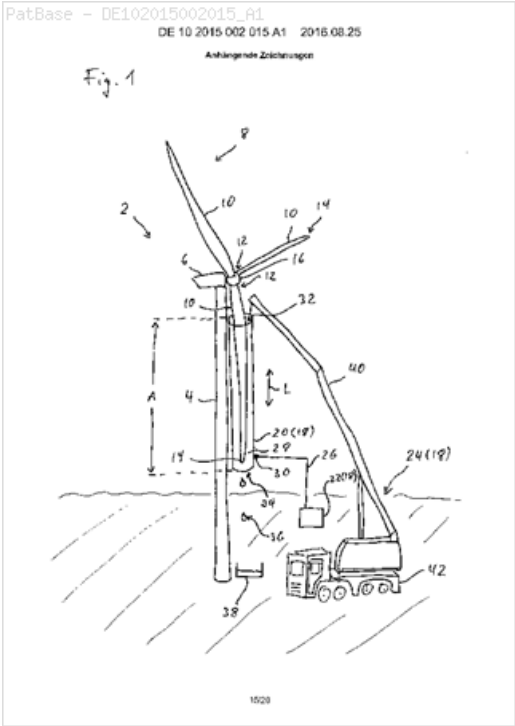
Abstract: Source: DE102015002015A1 [DE] Die Erfindung betrifft eine Rotorblattenteisungsvorrichtung (18), die durch eine schlauchfoermige Umhuellung (20) und eine Warmluft-Heizvorrichtung (22) fortgebildet ist, wobei die Umhuellung (20) einen Innenraum (28) zumindest teilweise umgibt und dazu eingerichtet ist, ein Rotorblatt (10) einer Windkraftanlage (2) zumindest

abschnittsweise in dem Innenraum (28) entlang einer Laengsrichtung (L) aufzunehmen, wobei die Umhuellung (20) entlang der Laengsrichtung (L) bewegbar ist, und wobei die Warmluft-Heizvorrichtung (22) dazu eingerichtet ist, in dem Innenraum (28) der Umhuellung (20) eine gegenueber einer Umgebungsatmosphaere der Umhuellung (20) waermere Innenatmosphaere bereitzustellen. **Machine translation:** The invention relates to a Rotorblatenteisungsvorrichtung (18), which is by a schlauchfoermige envelope (20) and a hot-air heating device (22) continuously formed, wherein the enclosure (20) a space (28) at least partially surrounds and is adapted, a rotor blade (10) of a wind turbine (2) at least partially in the interior (28) along a Laengsrichtung (L), wherein the sheath (20) along the Laengsrichtung (L) is movable, and the warm air heater (22) adapted in the interior (28) of the envelope (20) to provide an opposite one Umgebungsatmosphaere the envelope (20) warmer Innenatmosphaere.

Classifications:

International (IPC 8-9): F03D80/40 (Advanced/Invention)

CPC: F03D80/40 Y02E10/72 F03D80/50



Family:

Publication number	Publication date	Application number	Application date
DE102015002015 A1	20160825	DE201510002015	20150220

Priority:

DE201510002015 20150220

Probable Assignee: SENVION GMBH

Assignee(s): (std): SENVION GMBH

Inventor(s): (std): FRIEDRICH HANNES ; PETERSEN JENS ; WINDBICHLER RALPH

4) Family number: 1650005 (DE2721450A1) © PatBase

Title: WIND TURBINE FOR OPERATING ELECTRICAL GENERATOR - HAS CROWN OF BLADES ON VERTICAL ROTOR WHICH ARE HOLLOW BODY CURVED SEGMENTS

Abstract: The wind turbine for driving machines e.g. electrical generators or pumps has a pref. vertical rotor with at least two blades which in the rotary direction of the rotor run inwards on their front edges. This inwards shaping extends over the full width of the blades which are curved in a concave fashion over both width and axial length. The blades are segments or sections of hollow body and the blades are symmetrically mounted. The blade shaping provides particularly good stability and can be made from thin-walled low weight material.

Classifications:

International (IPC 8-9): F03D3/04 F03D3/06

F03D7/06 (Advanced/Invention);

F03D3/00 F03D7/00 (Core/Invention)

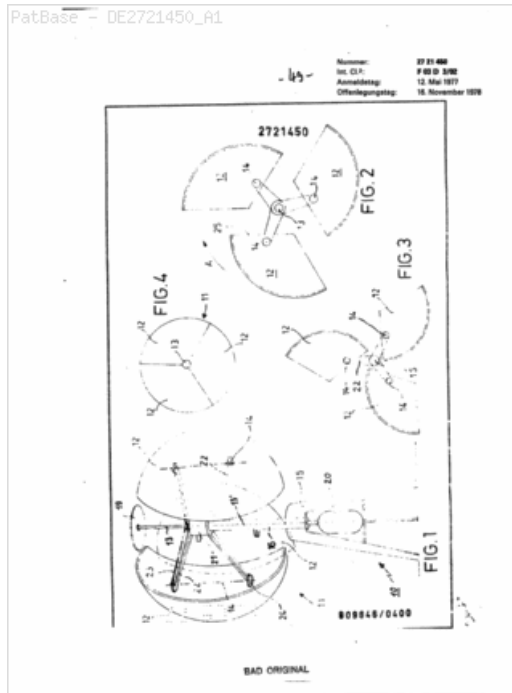
International (IPC 1-7): F03D3/02

CPC: F03D9/25 F03D3/0418 F03D3/061 F03D7/06 F03D15/20

F05B2240/202 F05B2240/216 Y02E10/74

European: F03D3/04B2 F03D3/06D F03D7/06 R05B240/202

R05B240/216 Y02E10/74

**Family:**

Publication number	Publication date	Application number	Application date
DE2721450 A1	19781116	DE19772721450	19770512

Priority:

DE19772721450 19770512

Probable Assignee:

HERTER ERICH

Assignee(s): (std):

HERTER ERICH

Inventor(s): (std):

HERTER ERICH

5) Family number: 30258007 (US2004009063A)

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Title: OSCILLATING SYSTEM ENTRAINING AXIAL FLOW DEVICES

Abstract: Devices benefiting the deceleration or acceleration of fluids by augmenting rotor-differential-pressures using rotor-phase-locked shear-plane pressure waves, and influencing system hysteresis and fluid-vector-shear through pulsed feedback, and resonance. These oscillations being generated by rotors embodying means 48 to engender waveforms conferring efficiencies through optimized vectors, and extended laminar boundary layers. A method of entraining such oscillation systems using the lubricity-masked passage through the axial shear plane of resonator-sequences 75, embodied within a rotor of spiral cam curvature, transiting at such rates-of-change of co-ordinate and phase as can enhance rotor differential pressures, improving energy interchange. A method of boundary layer scavenging using system hysteresis and phase- and topology-corrected shape-change to create traveling harmonic pressure waves 86 on the rotor tail. Methods using shape-change artifacts to improve alignment of force vectors, confer resistance to compressibility, reduce vorticity, noise, wake rotation, and confer expanded laminar flow.

Classifications:

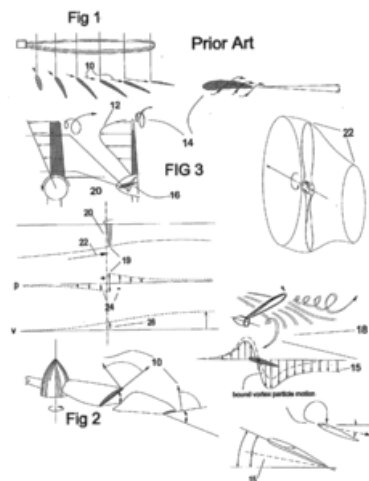
International (IPC 8-9): F03D1/06 (Advanced/Invention);
F03D1/00 (Core/Invention)

International (IPC 1-7): B64C11/18 F01D5/14

CPC: F05B2250/611 F03D1/0608 F05B2210/16 Y02E10/721

European: F03D1/06B R05B210/16 Y02E10/72B

US: 416/1 416/1P 416/223 416/223.00RS 416/223R 416/227R



Family:

Publication number	Publication date	Application number	Application date
US2004009063 AA	20040115	US20020194386	20020712
US6948910 BB	20050927	US20020194386	20020712

Priority:

US20020194386 20020712

Probable Assignee:

POLACSEK RONALD R

Assignee(s): (std):

POLACSEK RONALD R

Inventor(s): (std):

POLACSEK RONALD R