

# Invention To Patent Services, LLC

P.O. Box 31106 Flagstaff AZ 86003: 443-907-8019 [ahobson@invention-to-patent.com](mailto:ahobson@invention-to-patent.com)

## Reference Summary File

The references below were selected during the patent prior art search for additional review. Many of these references are provided in the Selected References ZIP file in full PDF format.

The summary below provides the title and abstract of each reference and includes embedded links for closer evaluation. Simply click on a US patent number in the family section as shown below (highlighted in yellow with red text), to open the full text of the patent. Likewise, you can click on the figure to open a full set of figures for that reference.

While reviewing the references, please make any notes to differences between what is described and your invention. These differences may be important distinctions for patentability. Please do not send emails with comments regarding the relevance of the references to your invention. If you have any questions, please give me a call.

### EXAMPLE Reference (DOES NOT HAVE EMBEDDED LINKS)

1) Family number: **7505332** (US3769742A)

**Title:** MOUSE TRAP

**Abstract:** Source: US3769742A A mouse trap is provided with a finger operable release lever for lifting the striking bar from a dead mouse that has been caught in a trap, so that a person emptying the trap does not touch the mouse, and with a plastic bag to receive the dead mouse. The plastic bag is positioned to protect the trap against contamination when a mouse is killed by the striking bar. A second plastic bag may be mounted on the striking bar to prevent contamination of the bar.

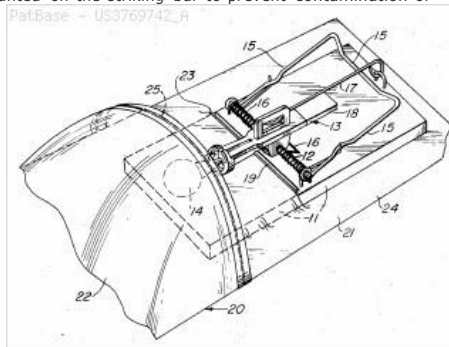
**Classifications:**

**International (IPC 8-9):** A01M23/30  
(Advanced/Invention); A01M23/00  
(Core/Invention)

**International (IPC 1-7):** A01M23/00

**European:** A01M23/30

**US:** 43/81 43/81.5



**Family:**

Publication number	Publication date	Application number	Application date
<b>US3769742A</b>	19731106	US19720259138	19720602

**Priority:**

US19720259138 19720602

**Assignee(s):** (std): GEIMER A ; LOESCHE V  
; SPAIN T **Assignee(s):** SPAIN T US ;

Privilege Information (This correspondence is intended for the recipient only)

1) Family number: 46988261 (US2010244453A)

© PatBase

Title: VERTICAL WIND TURBINE

**Abstract:** A vertical wind turbine rotatable on its vertical axis in order to capture the most direct vector of the wind, the vertical wind turbine having a horizontal inlet port in communication with a vertical air shaft within which mounted vertically, a shaft having a plurality of horizontally disposed wind turbine blades, the lower end magnetically floating to reduce friction, the lower portion of the vertical wind turbine shaft in intersecting communication with one or more horizontal shafts having a venturi design so as to draw a partial vacuum or low pressure, enhancing the downward flow of the air in the vertical wind turbine, the vertical wind turbine in communication with a generator for the production of electricity, the vertical wind turbine being rotatably but stationary mounted on a stationary object or fixedly mounted on a vehicle with the inlet port of the vertical wind turbine forwardly facing.

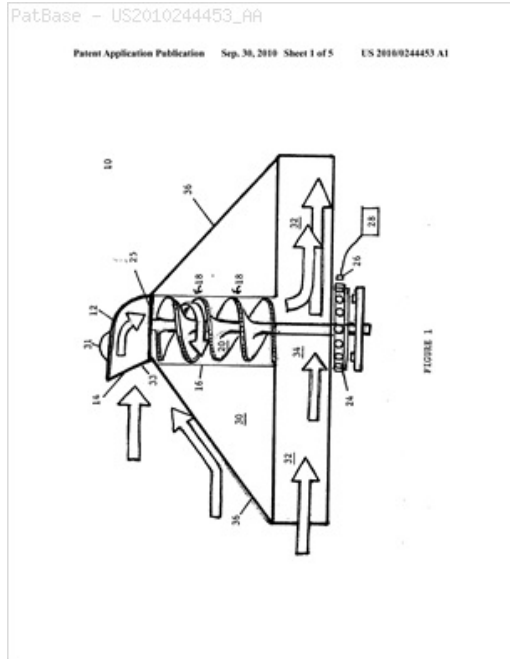
**Classifications:**

**International (IPC 8-9):** F03D9/00 F04D29/44 (Advanced/Invention);  
F03B17/04 (Advanced/Non-invention);  
F03D9/00 F04D29/44 (Core/Invention);  
F03B17/00 (Core/Non-invention)

**CPC:** F03D1/04 F03D1/02 F03D9/00 F03D9/25 F03D9/32 F03D9/34  
F05B2240/13 F05B2240/211 F05B2240/941 F05B2250/25 Y02B10/30  
Y02E10/72

**European:** F03D9/00 R05B240/13 R05B240/211 R05B240/941  
R05B250/25 Y02B10/30 Y02E10/72

**US:** 290/55 290/55P 415/203 415/203S 415/916 415/916S



Family:

Publication number	Publication date	Application number	Application date
US2010244453 AA	20100930	US20100661190	20100312

Priority:

US20090211281P 20090327 US20100661190 20100312

Probable Assignee:

DORNAN MARK

Assignee(s): (std):

DORNAN MARK

Inventor(s): (std):

DORNAN MARK

Agent(s):

CLIFFORD G FRAYNE

2) Family number: 44514373 (US2010071869A)

© PatBase

Title: COOLING SYSTEM

**Abstract:** Apparatus for cooling, the apparatus including a solar tower having a collector extending radially outwardly from a base of a chimney, the collector being for heating air at least in part using solar radiation to thereby induce air flow radially inwardly from a perimeter of the collector and up the chimney and at least one cooling air pipe, the cooling air pipe extending at least partially along a length of the chimney to allow cool air to be drawn through the pipe at least partially using the air flow, the cool air being used to provide cooling.

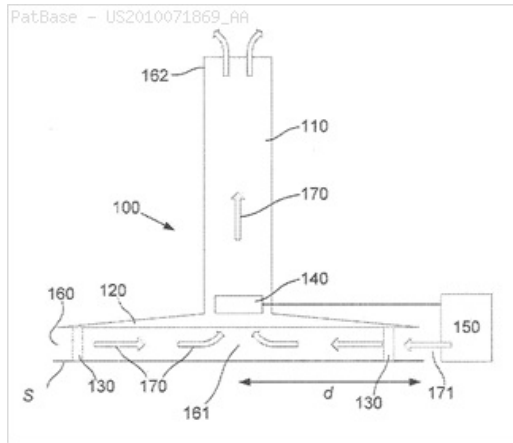
**Classifications:**

**International (IPC 8-9):** F03D9/00 F03G6/04 F03G6/06 F24J2/04  
F25B29/00 F25D1/00 H05K7/20 (Advanced/Invention);  
F03D9/00 F03G6/00 F24J2/04 F25B29/00 F25D1/00  
H05K7/20 (Core/Invention)

**CPC:** F03G6/045 F05B2260/20 Y02B10/20 Y02B10/30 Y02B10/70  
Y02E10/465 Y02E10/725

**European:** F03G6/04B R05B260/20 Y02B10/20 Y02B10/30  
Y02B10/70 Y02E10/46U Y02E10/72H

**US:** 126/634 126/634S 165/48.2 165/48.200P 290/55 290/55S  
361/679.46 361/679.460S 60/641.8 60/641.800S



**Family:**

Publication number	Publication date	Application number	Application date
AU2009203009 AA	20100225	AU20090203009	20090724
US2010071869 AA	20100325	US20090535603	20090804

**Priority:**

AU20080904011 20080806 AU20090203009 20090724

**Probable Assignee:** CAVE DAVIES COLLISON

**Assignee(s):** (std): CODE VALLEY CORP PTY LTD

**Assignee(s):** CAVE DAVIES COLLISON

**Inventor(s):** (std): LOVISA NOEL WILLIAM

**Inventor(s):** NOEL WILLIAM LOVISA

**Agent(s):** DAVIES COLLISON CAVE; DAVIES COLLISON CAVE PTY LTD; DLA PIPER US LLP

**3) Family number: 41121331** (US2008292456A) © PatBase

**Title:** DEVICE FOR PRODUCING MECHANICAL ENERGY BY MEANS OF A DIVERGENT, TELESCOPIC AND AUTO SUSTAINED CHIMNEY

**Abstract:** A telescopic chimney and methods are disclosed for generation of mechanical energy using air routed through a turbine. Truncated cones stored nested together telescope to interlock when extended end to end to form a conical shape that diverges upwardly. An air output deflector at the exit of the chimney drives the exiting airflow downwards and is optionally divided into six equal radial spans so that airflow can be varied through each by a computer-controlled shutter to compensate for wind forces. An axial cable raises and lowers truncated cones. A method of deploying the chimney includes steps of closing the shutters; filling the truncated cones with heated air; controlling the rise of the truncated with the cable; and, opening the shutters. A method of collapsing the chimney includes the steps of pulling the cable to exert downward force on a truncated cone.

**Classifications:**

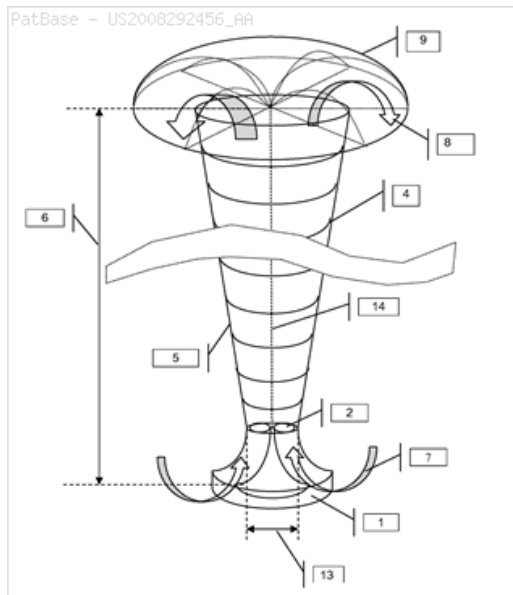
**International (IPC 8-9):** F01D1/20 F01D25/00 F01D25/30 F02C1/00 F02C1/05 F02C7/00 F03D1/04 F03D9/00 F03G F03G6/00 F03G6/04 F03G7/04 (Advanced/Invention); F01D1/00 F01D25/00 F02C1/00 F02C7/00 F03D1/00 F03G6/00 F03G7/00 (Core/Invention); F03G (Subclass/Invention)

**International (IPC 1-7):** F03G6/00 F03G6/04

**CPC:** F03G7/04 F05B2240/131 F05B2240/9151 F05B2250/324 F05B2280/6003 F05C2253/04 Y02E10/465 Y02E10/728 F03D9/35

**European:** F03D1/04 F03G7/04 R05B240/131 R05B240/9151 R05B250/324 R05B280/6003 R05C253/04 Y02E10/10 Y02E10/46U Y02E10/72 Y02E10/72H Y02E10/72N

**US:** 290/44 290/55 415/2.1 415/208.1 415/208.100P 415/4.1 415/4.2 415/4.4



**Family:**

Publication number	Publication date	Application number	Application date
AU2007275100 AA	20080124	AU20070275100	20070605
AU2007275100 BB	20101223	AU20070275100	20070605
BRPI0711206 A2	20110315	BR2007PI11206	20070605
CN101360915 A	20090204	CN200780001551	20070605
CN101360915 B	20121017	CN200780001551	20070605
FR2903740 A1	20080118	FR20060006462	20060717
FR2903740 B1	20090220	FR20060006462	20060717
HK1124899 A1	20130201	HK20090102229	20090309

HK1124899 A1	20090724	HK20090102229	20090309
HK1124899 B	20130201	HK20090102229	20090309
IN01501CN2008 A	20090320	IN2008CN01501	20080327
IN261939 B	20140725	IN2008CN01501	20080327
JP2009541637 T2	20091126	JP20090515906T	20070605
JP4870811 B2	20120208	JP20090515906T	20070605
MX2009000444 A1	20090514	MX20090000444	20070605
US2008292456 AA	20081127	US20070096608	20070605
US7931434 BB	20110426	US20070096608	20070605
VN9223 A1	20110525	VN20090000532	20070605
WO08009785 A1	20080124	WO2007FR00922	20070605

**Priority:**

FR20060000717 20060717 FR20060006462 20060717 WO2007FR00922 20070605

**Probable Assignee:** RAYNAL MARC

**Assignee(s):** (std): MARC RAYNAL ; RAYNAL MARC

**Inventor(s):** (std): RAYNAL MARC ; MARC RAYNAL ; ZUNYU CHEN ; CHAN CHUEN YU

**Inventor(s):** CHEN ZUNYU

**Agent(s):** IP SOLVED ANZ PTY LTD; HODGKINSON MCINNES PATENTS; MARC RAYNAL; WHD LTD; SUNHOPE INTELLECTUAL PROPERTY LTD; LOUIS VENTRE JR; LOUIS; PADEMARK CO LTD

**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 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 PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

**4) Family number: 38523639 (US2007231118A)**

© PatBase

**Title:** VERTICAL WIND TURBINE SYSTEM WITH ADJUSTABLE INLET AIR SCOOP AND EXIT DRAG CURTAIN

**Abstract:** A wind driven vertical axis power generating system is disclosed. An air scoop directs air from the prevailing wind into an air turbine. An exit drag curtain provides for an efficient re-entrainment of the power generating air back into the prevailing wind. The design provides for an efficient method of utilizing the energy from a prevailing wind. The air scoop and exit drag curtain may be rotated to be suitably oriented to the prevailing wind direction. The invention is visually pleasing in shape, as well as efficient in the production of useful power.

**Classifications:**

**International (ipc 8-9):** F03D1/04 F03D13/20 F03D3/00 F03D3/04 F03D7/06 F03D9/00 F03D9/25 F03D9/45

H02K7/18 (Advanced/Invention);

F03D3/00 (Advanced/Non-invention);

F03D3/00 F03D7/00 (Core/Invention)

**CPC:** Y10S415/907 F03D3/005 F03D9/39 Y02E10/728 F03D9/32

F03D9/34 F03D3/0454 F03D3/049 F03D9/35 F05B2240/13

F05B2250/5012 Y02B10/30 F03D9/37 F03D3/002 F03D3/04

F03D3/0436 F03D1/04 F03D3/0409 F03D3/0427 F03D3/0481

Y02E10/74 F03D9/45 H02K7/183 F05B2240/9112 F03D9/25

**European:** F03D1/04 F03D3/04E4B R05B240/13 R05B250/5012

Y02B10/30 Y02E10/72 Y02E10/74

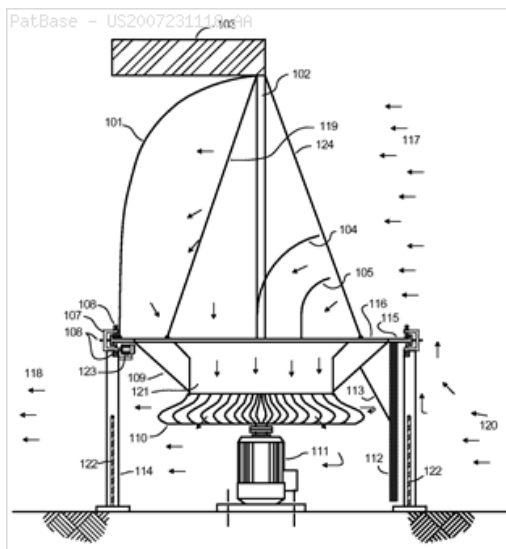
**US:** 1/1 290/55 415/1 415/116 415/127 415/147 415/177 415/177S

415/182.1 415/182.100P 415/1P 415/211.2 415/220 415/4.2

415/4.200P 415/4.3 415/4.4 415/4.5 415/58.4 415/58.400S 415/58.5

415/907 416/132.00A 416/132.00B 416/132A 416/132B 416/244.00R

416/244R 416/9



**Family:**

Publication number	Publication date	Application number	Application date
US2007231118 AA	20071004	US20060608658	20061208
US2009155043 AA	20090618	US20090355411	20090116
US2010278629 AA	20101104	US20100834722	20100712
US2012121396 AA	20120517	US20120352259	20120117
US2012288357 AA	20121115	US20120488400	20120604
US2016084227 AA	20160324	US20150960286	20151204
US7488150 BB	20090210	US20060608658	20061208
US7753644 BB	20100713	US20090355411	20090116
US8403623 BB	20130326	US20120352259	20120117
US8459930 BB	20130611	US20120488400	20120604
US9273665 BA	20160301	US20120607614	20120907
US9453494 BB	20160927	US20150960286	20151204
US10280900 BA	20190507	US20160249467	20160828

**Priority:**

US20050766003P 20051229 US20060608658 20061208 US20090355411 20090116  
 US20100834722 20100712 US20120352259 20120117 US20120488400 20120604  
 US20120607614 20120907 US20150960286 20151204 US20160249467 20160828

**Probable Assignee:** KRIPPENE BRETT C

**Assignee(s):** (std): KRIPPENE BRETT C

**Inventor(s):** (std): KRIPPENE BRETT C  
**Inventor(s):** KRIPPENE BRETT  
**Agent(s):** LOEN PATENT SERVICES; ALEX R; INVENTION TO PATENT SERVICES; ALEX; HOBSON ALEX

**5) Family number: 33023771** (US2006108809A)

© PatBase

**Title:** PROTECTIVE WIND ENERGY CONVERSION CHAMBER

**Abstract:** A protective wind energy conversion chamber provides a protected multiple turbine mechanism axially aligned to convert kinetic energy of a moving fluid (e.g., wind) into rotational mechanical power by the reaction of the moving fluid with the turbine. The conversion chamber may either be configured as a vertical axis wind turbine (VAWT) or horizontal axis wind turbine (HAWT). The conversion chamber repositions an intake windward to collect and concentrate the wind prior to converting the wind into energy via the axially aligned multi-turbine mechanism. The remaining wind is released via a leeward-facing exhaust. Completely enclosed by the protective wind energy conversion chamber, the axially aligned multi-turbine mechanism avoids interference by birds and other outside objects.

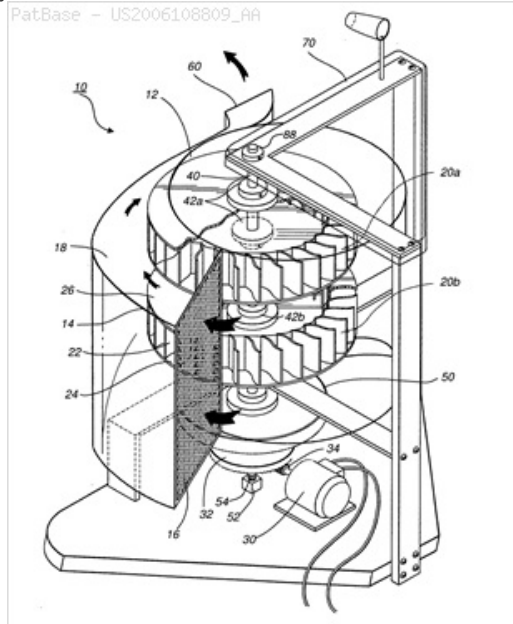
**Classifications:**

**International (IPC 8-9):** F03D9/00 H02P9/04 (Advanced/Invention); F03D9/00 H02P9/04 (Core/Invention)

**CPC:** B60L8/00 B60K2016/006 F05B2240/941 Y02B10/30 Y02E10/74 Y02T10/7083 Y02T10/90 F03D3/0463 F03D9/30 F03D9/25

**European:** B60K16/00 B60L8/00 F03D1/04 F03D3/04B F03D9/00C L60K16/00B R05B240/941 Y02B10/30 Y02E10/72 Y02E10/74 Y02T10/70J2B

**US:** 290/44 290/55 290/55P



**Family:**

Publication number	Publication date	Application number	Application date
EP1856796 A2	20071121	EP20050856980	20051118
US2006108809 AA	20060525	US20040993102	20041119
US7215037 BB	20070508	US20040993102	20041119
WO06073590 A2	20060713	WO2005US41939	20051118
WO06073590 A3	20061012	WO2005US41939	20051118

**Priority:**

US20040993102 20041119 WO2005US41939 20051118

**Probable Assignee:** SCALZI SAVERIO

**Assignee(s):** (std): SCALZI SAVERIO

**Inventor(s):** (std): SCALZI SAVERIO

**Agent(s):** LERNER GREENBERG STEMER LLP; WERNER H; RALPH E; LAURENCE A

**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 KM KN KP KR KZ LC LI LK LR LS LT LU LV LY MA MC MD MG MK ML MN MR MW MX MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RU SC SD SE SG SI SK SL SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**6) Family number: 59954420** (US2005201855A)

© PatBase

**Title:** WIND POWERED TURBINE IN A TUNNEL

**Abstract:** A wind powered turbine has a conduit. A middle conduit portion is located between inlet and outlet conduit portions, having a main inlet and outlet of the conduit, respectively. A rotor having a shaft with blades extending therefrom is located in the middle conduit portion. The blades are located completely within the middle conduit portion. Preferably, a splitter is located in the inlet conduit portion to provide upper and lower sub-tunnels that both feed into the middle conduit portion. Upper and lower interior walls of the middle conduit portion have substantially circular plane shapes that are substantially centered at the rotational axis of the shaft. Upper and lower clearance gaps are located between the blades and the upper and lower interior walls, respectively. The main outlet is preferably higher than the main inlet. Preferably, a generator is located on each side of the conduit and rotatably coupled to the shaft.

**Classifications:**

**International (IPC 8-9):** F03B15/06 F03D11/04 F03D3/00 F03D3/04 F03D7/00 F03D7/06 F21L4/02 F21V29/00 (Advanced/Invention);

F03B15/06 F03D7/00 (Advanced/Non-invention);

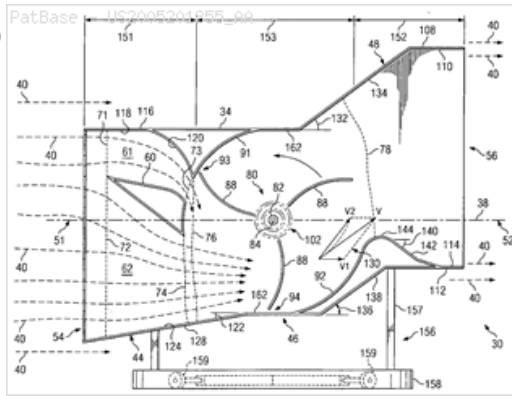
F03B15/00 F03D11/00 F03D3/00 F03D7/00 F21L4/00

F21V29/00 (Core/Invention);

F03B F03D (Subclass/Invention)

**International (IPC 1-7):** F03D7/00 F21L4/02 F21V29/00

**CPC:** F03D3/002 F03D7/06 F05B2240/133 Y02E10/728 F03D3/0409 F21S45/47 F03D13/20 F03D3/062 F03D9/25 F05B2240/21 Y02B10/30 Y02E10/727 Y02E10/74  
**European:** F03D11/04 F03D3/00C F03D3/04D F03D7/06 F21S48/32P R05B240/133 Y02B10/30 Y02E10/72L Y02E10/72N Y02E10/74  
**US:** 290/55 415/4.1



**Family:**

Publication number	Publication date	Application number	Application date
AU2005221199 AA	20050922	AU20050221199	20050309
CA2557242 AA	20050922	CA20052557242	20050309
CN1930393 A	20070314	CN200580007490	20050309
CN1930393 B	20101103	CN200580007490	20050309
EP1725768 A2	20061129	EP20050725395	20050309
EP1725768 A4	20091209	EP20050725395	20050309
IN02710KN2006 A	20070601	IN2006KN02710	20060918
JP2007528467 T2	20071011	JP20070503056T	20050309
KR20070015926 A	20070206	KR20067020173	20060928
RU2006133927 A	20080420	RU20060133927	20050309
US2005201855 AA	20050915	US20040796369	20040309
US6981839 BB	20060103	US20040796369	20040309
WO05086959 A2	20050922	WO2005US08200	20050309
WO05086959 A3	20060615	WO2005US08200	20050309
ZA200607825 A	20080730	ZA20060007825	20060919

**Priority:**

US20040796369 20040309 WO2005US08200 20050309 KR20067020173 20060928

**Probable Assignee:** FANS LEON

**Assignee(s):** (std): FAN LEON ; LEON FAN

**Assignee(s):** FANS LEON

**Inventor(s):** (std): LEON FAN ; FAN LEON

**Agent(s):** ACACIA LAW; MACPHERSON LESLIE AND TYERMAN LLP; SLATER AND MATSIL LLP

**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 LI 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 SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

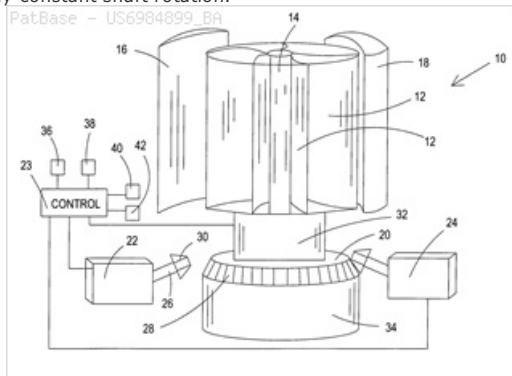
**7) Family number: 32537246 (US6984899B) © PatBase**

**Title:** WIND DAM ELECTRIC GENERATOR AND METHOD

**Abstract:** A vertical axis windmill is provided wherein the amount of wind directed to blades in the power producing part of rotation and the mechanical load of multiple generators is controlled by a feedback control to maintain a relatively constant rotational frequency of the shaft of the windmill. In a preferred embodiment, two wind foils extend radially outwardly from the blades to thereby provide a scoop capable of pulling in more air than would normally be received by the blades. The wind foils then direct the wind flow to the power producing part of rotation of the blades for maximum power output, when necessary. The wind foils can close to control the wind flow to the blades. The generating capacity of a plurality of generators is also controlled in response to shaft rotation to maintain substantially constant shaft rotation.

**Classifications:**

**International (IPC 8-9):** F03D3/04 (Advanced/Invention); F03D3/00 (Core/Invention)  
**CPC:** F03D7/06 F05B2260/421 Y02E10/74 F03D3/0481 F03D9/25 F03D15/10  
**European:** F03D3/04E4D F03D7/06 R05B260/421 Y02E10/74 Y02E60/16  
**US:** 290/44 290/55 415/4.2 416/197A



**Family:**

Publication number	Publication date	Application number	Application date
US6984899 BA	20060110	US20040789484	20040301

**Priority:**

US20040789484 20040301

**Probable Assignee:** US NAVY

**Assignee(s):** (std): US NAVY

**Assignee(s):** NAVY US GOV SECRETARY OF AS ; NAVY US SEC ; SECRETARY OF NAVY AS US GOV ; SECRETARY OF NAVY US GOV AS ; THE UNITED STATES OF AMERICA AS REPRESENTED BY THE ; THE UNITED STATES OF AMERICA AS REPRESENTED BY THE SECRETARY OF THE NAVY

**Inventor(s):** (std): RICE PAHL W

**Agent(s):** JEAN PAUL A; MICHAEL P; JAMES M

**8) Family number: 31866865** (US2005086937A)

© PatBase

**Title:** COMBINED SOLAR AND WIND POWERED ROTOR MECHANISM

**Abstract:** The subject apparatus which incorporates features of the subject invention is a combined wind powered and solar powered rotor mechanism, specifically utilizing energy from both solar and wind sources to provide energy to drive a rotor mechanism, such apparatus comprising in its general form a vertically standing or substantially upright structure that has an air intake opening at the bottom portion or at some position intermediate between the bottom portion and upper portion of the apparatus, such opening connecting outside air with a central longitudinally extending chamber that extends upwardly towards the upper part of the apparatus, with a portion of the apparatus, in one embodiment, being comprised of translucent material to admit solar energy into the longitudinal extending chamber with a portion of the chamber, in one embodiment, being formed of solar absorption materials to receive solar energy, with an air powered rotor mechanism at or near the upper portion of the chamber, such rotor mechanism having a central rotational axle rotationally installed through or adjacent to such chamber, such rotational axle having air movement sensitive means to receive the impact of any upwardly extending air moving through such chamber and additionally having air movement sensitive means disposed on a portion of such rotational axle to receive directly air from outside such chamber, for direct rotational drive of such rotational axle.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D9/00

F03G6/04 (Advanced/Invention);

F03D1/00 F03D9/00 F03G6/00 (Core/Invention)

**International (IPC 1-7):** B60K16/00 B60L8/00 F03G6/00

**CPC:** F03D9/007 F03D1/025 F03D1/04 F03D3/0427 F03D9/25

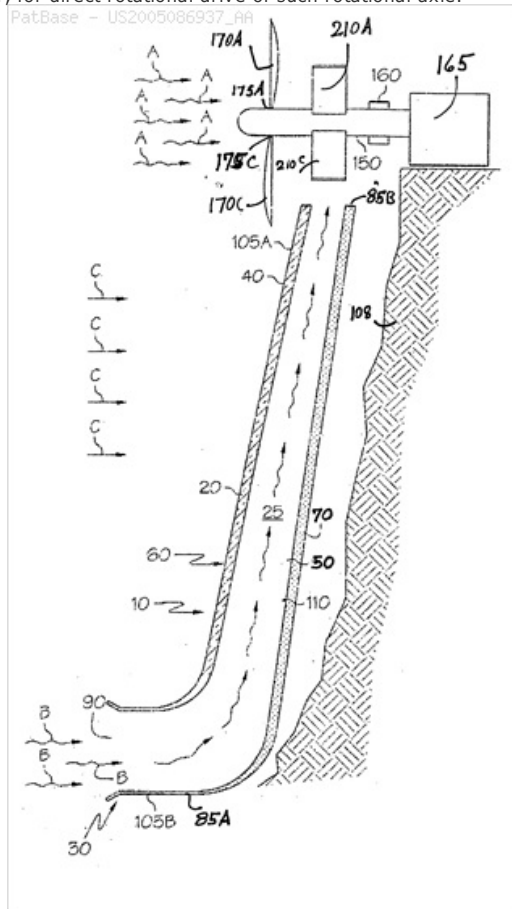
F03D80/70 F03G6/045 F05B2240/131 F05B2260/24 Y02E10/465

Y02E10/72

**European:** F03D1/04 F03D9/00E F03G6/04B R05B240/131

R05B260/240 Y02E10/46U Y02E10/72

**US:** 60/641.8 60/641.800P



**Family:**

Publication number	Publication date	Application number	Application date
US2005086937 AA	20050428	US20030694701	20031027

**Priority:**

US20030694701 20031027

**Probable Assignee:**

ROYER GEORGE R

**Assignee(s):**

ROYER GEORGE R

**Inventor(s):** (std):

ROYER GEORGE R

**Inventor(s):**

ROYER GEORGE

**Agent(s):**

GEORGE R ROYER

**9) Family number: 31488626** (US2005019150A)

© PatBase

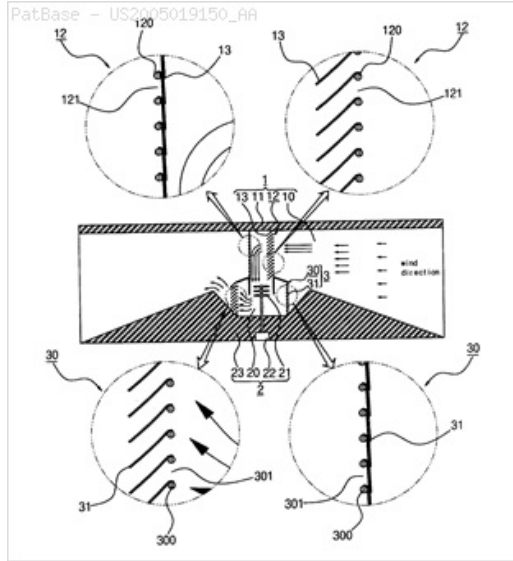
**Title:** WINDMILL

**Abstract:** A windmill. A wind intake section has wind guide plates, a wind inlet defined between two adjoining wind guide

plates, and a wind inlet opening and closing device placed at the wind inlet. The wind inlet opening and closing device is opened by the wind flowing through the wind inlet into the windmill and closed by the wind flowing through the wind inlet out of the windmill. A power generating section is disposed to rotate rotors by the wind introduced into the windmill through the wind intake section and thereby generate electricity. A wind exhaust section has a wind outlet, and a wind outlet opening and closing device placed at the wind outlet. The wind outlet opening and closing device is opened by the wind flowing through the wind outlet out of the windmill and closed by the wind flowing through the wind outlet into the windmill.

**Classifications:**

**International (IPC 8-9):** F03B13/00 F03D1/04 F03D3/00 F03D7/00 (Advanced/Invention); F03D3/00 (Advanced/Non-invention); F03B13/00 F03D1/00 F03D3/00 F03D7/00 (Core/Invention)  
**International (IPC 1-7):** F03B13/00 F03D3/00 F03D7/00  
**CPC:** Y10S415/907 Y02B10/30 Y02E10/72 F03D3/0481 F03D9/25 F03D1/04 Y02E10/74 F03D3/061 F03D3/062 F05B2240/211  
**European:** F03D1/04 Y02B10/30 Y02E10/72  
**US:** 415/149.1 415/211.2 415/4.1 415/4.100P 415/4.2 415/907



**Family:**

Publication number	Publication date	Application number	Application date
AU2003276751 AA	20050214	AU20030276751	20031107
KR100531220 B1	20051125	KR20030051293	20030725
KR200329868 Y1	20031010	KR20030024055U	20030725
KR20050012354 A	20050202	KR20030051293	20030725
US2005019150 AA	20050127	US20030690622	20031023
US6939101 BB	20050906	US20030690622	20031023
WO05010356 A1	20050203	WO2003KR02377	20031107

**Priority:**

KR20030024055U 20030725 KR20030051293 20030725 WO2003KR02377 20031107

**Probable Assignee:** YOO BYUNG SOO

**Assignee(s):** (std): RYU BYUNG SUE ; YU BYUNG SOO ; YU YOUNG SIL

**Assignee(s):** YOO BYUNG SOO

**Inventor(s):** (std): YU YOUNG SIL ; YU BYUNG SOO ; RYU BYUNG SUE

**Inventor(s):** YOUNG SIL YU ; BYUNG SOO YU

**Agent(s):** ARENT FOX KINTNER PLOTKIN AND KAHN; ARENT FOX

**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 KZ LC LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ 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 UZ VC VN YU ZA ZM ZW

**10) Family number: 31384715 (US2004247438A)**

© PatBase

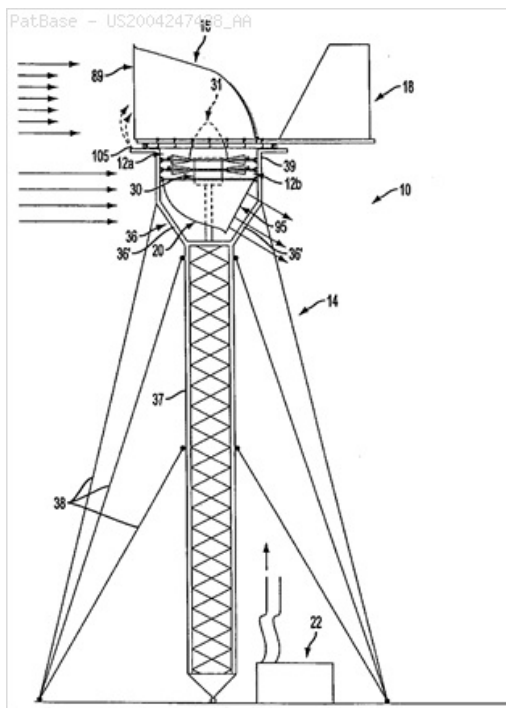
**Title:** WIND ENERGY CONVERSION SYSTEM

**Abstract:** A wind energy conversion system includes upper and lower wind turbines having counter-rotating blade assemblies supported for rotation about a vertical rotation axis, with each blade assembly carrying a rotor for rotation past a stator to produce an electrical output. The wind turbines are supported by a tower at an elevated position above the ground. Each wind turbine produces torque, and the wind energy conversion system provides for balancing the torques to avoid a net torque on the tower. Adjustment mechanisms are provided for adjusting blade pitch and for adjusting the size of an air gap between a stator and a rotor that comes into alignment with the stator as the rotor rotates therepast. The wind energy conversion system provides a hood for supplying intake air to a wind turbine and an exhaust plenum for exhausting air from the wind turbine, with the hood and the exhaust plenum being directionally positionable.

**Classifications:**

**International (IPC 8-9):** F03B13/00 F03D1/00 F03D1/02 F03D1/04 F03D11/02 F03D11/04 F03D3/02 F03D3/04 F03D9/00 H02K21/02 H02K7/18 H02P9/04 (Advanced/Invention)  
**International (IPC 1-7):** F03D1/00 F03D9/00 H02P9/04  
**CPC:** F03D3/005 H02K7/1869 Y02E10/74 H02K21/026 F03D9/11 F03D9/25 F03D13/20 F03D13/22 F03D80/70 Y02E10/72 F03D1/025  
**European:** F03D1/02B F03D1/04 F03D3/00D F03D3/02 F03D3/04E4 H02K7/18B Y02E10/72 Y02E10/72N Y02E10/74  
**US:** 290/44 290/50 290/52 290/53 290/54 290/55 290/55P 415/2 415/208 415/4 416/119 416/132 416/132.00BP 416/132B





**Family:**

Publication number	Publication date	Application number	Application date
AU2005216113 AA	20050909	AU20050216113	20050218
AU2005216113 BB	20110317	AU20050216113	20050218
CA2556490 AA	20050909	CA20052556490	20050218
EP1751426 A2	20070214	EP20050727219	20050218
EP1751426 A4	20120905	EP20050727219	20050218
US2004247438 AA	20041209	US20040783413	20040220
US2005082839 AA	20050421	US20040883214	20040701
US2006006658 AA	20060112	US20050228851	20050916
US2006012182 AA	20060119	US20050228183	20050916
US6952058 BB	20051004	US20040883214	20040701
US7098552 BB	20060829	US20050228183	20050916
US7116006 BB	20061003	US20050228851	20050916
WO05081885 A2	20050909	WO2005US05347	20050218
WO05081885 A3	20071227	WO2005US05347	20050218

**Priority:**

US20030448355P 20030220	US20040783413 20040220	US20040883214 20040701
WO2005US05347 20050218	US20050228183 20050916	US20050228851 20050916

**Probable Assignee:** WECS INC

**Assignee(s):** (std): MCCOIN DAN K ; MCCOIN DAN KEITH ; WECS INC

**Inventor(s):** (std): MCCOIN DAN KEITH ; MCCOIN DAN K

**Inventor(s):** DAN KEITH MCCOIN ; MCCOIN DAN

**Agent(s):** GRIFFITH HACK ; MACRAE AND CO ; EPSTEIN AND GERKEN

**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 LI 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 SM SN SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

**11) Family number: 30780855 (US2004156723A)**

© Patbase

**Title:** VERTICAL AXIS WINDMILL

**Abstract:** A vertical axis windmill has an immovable, hollow circumferential frame having a plurality of peripheral openings, and rotatable turbine arranged inside the frame and connectable to a generator of electric energy, the turbine having a plurality of vanes each having a working side and a non-working side, and a plurality of gate elements turnably connected with the frame for closing and opening of the openings of the frame by wind flowing substantially in a horizontal plane, the gate elements and the vanes of the turbine being formed so that at one side of the frame the wind opens the gate members by turning them in a predetermined direction, so that at one side the wind turns the gate elements so as to open corresponding ones of the openings, enters the frame through the corresponding opened openings and acts on the working side of corresponding ones of the vanes so as to rotate the turbine in the predetermined direction, while at the same time at the other side of the frame the wind closes other offset gate members.

**Classifications:**

**International (IPC 8-9):** F03D3/06 (Advanced/Invention); F03D3/00 (Core/Invention)

**International (IPC 1-7):** F03D7/00

**CPC:** Y10S415/907 F03D3/067 F05B2260/72 Y02B10/30 Y02E10/74

**European:** F03D3/06E6 R05B260/72 Y02B10/30 Y02E10/74

**US:** 415/4.2 415/4.200S 415/907 416/197 416/197.00AP 416/197A 416/41

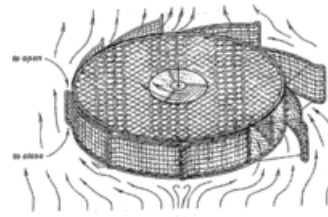


FIG-1

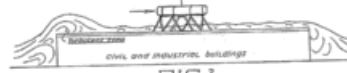


FIG-2



FIG-2'



FIG-3

**Family:**

Publication number	Publication date	Application number	Application date
US2004156723 AA	20040812	US20030359335	20030207
US6962478 BB	20051108	US20030359335	20030207

**Priority:**

US20030359335 20030207

**Probable Assignee:**

TSIPOV MICHAEL

**Assignee(s):** (std):

TSIPOV MICHAEL

**Inventor(s):** (std):

TSIPOV MICHAEL

**Agent(s):**

I

**12) Family number: 28045335 (US2003026684A)**

© PatBase

**Title:** COLUMN AIRFLOW POWER APPARATUS

**Abstract:** A column airflow power apparatus for creating mechanical power is provided. The column airflow power apparatus comprises a column structure having an open first end and an open second end with airflow moving through the column structure from the first end to the second end. A rotatable blade is mounted within the column structure with the airflow rotating the rotatable blade. A power shaft is connected to the rotatable blade with the power shaft rotating with the rotatable blade. A rotatable turret device is mounted to the second end of the column structure and an adjustable airfoil mounted to the rotatable turret. An air concentrator can be mounted within the column structure between the first end and the rotatable blade.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D3/00 F03D3/04

F03D9/00 (Advanced/Invention);

F03D1/00 F03D3/00 F03D9/00 (Core/Invention)

**International (IPC 1-7):** F03D1/04 F03D3/00 F03D3/04 F03D9/00

F04D1/00

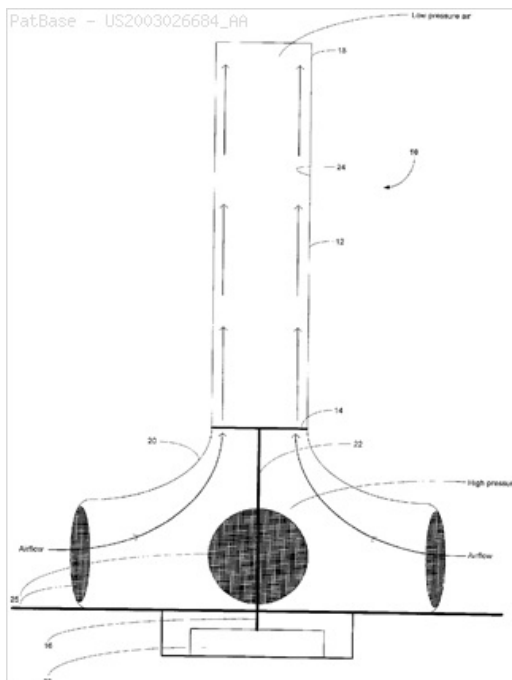
**CPC:** Y10S415/909 F05B2240/131 F03D13/20 F03D1/04 Y02E10/728

**European:** F03D1/04 R05B240/131 Y02E10/72

**US:** 290/55 415/1 415/150 415/1P 415/4.2 415/4.200S 415/4.3

415/4.300S 415/4.4 415/4.400S 415/4.5 415/4.500S 415/909

415/909S



**Family:**

Publication number	Publication date	Application number	Application date
--------------------	------------------	--------------------	------------------

AT349612 E	20070115	AT20020759251T	20020802
DE60217134 D1	20070208	DE20026017134	20020802
EP1423607 A1	20040602	EP20020759251	20020802
EP1423607 A4	20041006	EP20020759251	20020802
EP1423607 B1	20061227	EP20020759251	20020802
US2003026684 AA	20030206	US20010923158	20010806
US6626636 BB	20030930	US20010923158	20010806
WO03014563 A1	20030220	WO2002US24605	20020802

**Priority:**

US20010923158 20010806 WO2002US24605 20020802

**Probable Assignee:** AWA RESEARCH LLC

**Assignee(s):** (std): AWA RES LLC

**Assignee(s):** AWA RESEARCH LLC ; AWA RESEARCH LLC 3053 WEST 34TH AVENUEDE NV ; BOHN JERRY W

**Inventor(s):** (std): BOHN JERRY W

**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE 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 LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ OM PH PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW

**13) Family number: 28319571 (US2002180216A)**

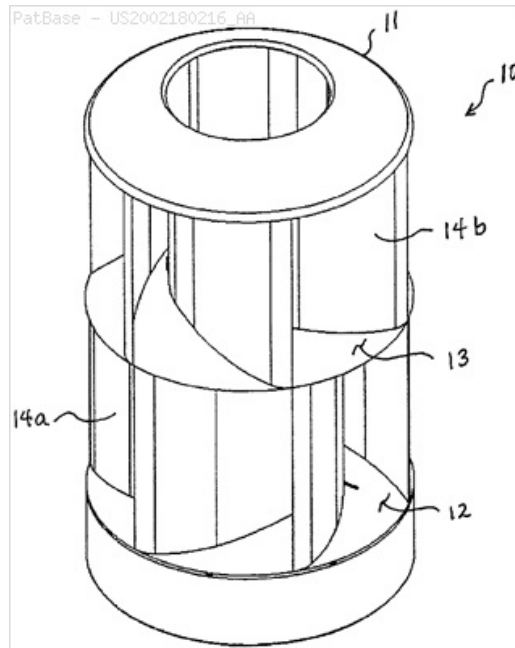
© PatBase

**Title:** FLUID-POWERED ENERGY CONVERSION DEVICE

**Abstract:** A fluid-powered energy conversion device for converting energy in a moving fluid such as air into mechanical energy. A rigid cylindrical frame includes an upstream annular chamber and a downstream annular chamber, each of the chambers having sides that are open to allow entry of the wind. A plurality of longitudinal baffles form a toroidal pattern that creates an upstream drive vortex in the upstream chamber, and a downstream extraction vortex rotating in the opposite direction in the downstream chamber. The drive vortex rises and changes direction as it passes through a turbine mounted on a longitudinal drive shaft in a central aperture between the chambers. The turbine is rotated by the rotational momentum of the drive vortex, by lift that is generated by each turbine blade, and by additional momentum that is created by the vortex reversal.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D3/04 F04D1/04 F16H33/16 (Advanced/Invention); F03D1/00 F03D3/00 F04D1/00 F16H33/00 (Core/Invention)  
**International (IPC 1-7):** F03B13/00 F03D3/00 F03D3/04 F03D9/00 F04D1/04 F16H33/16 H02P9/04  
**CPC:** F03D3/0409 F03D9/12 F03D9/25 F03D13/10 F04D1/04 F05B2240/132 F05B2210/16 F03D1/04 Y02E10/74 Y02E60/16 Y02E10/72  
**European:** F03D1/04 F04D1/04 R05B210/16 R05B240/132 Y02E10/72 Y02E10/72H  
**US:** 290/43 290/44 290/54 290/54P 290/55 290/55P 415/4.2 415/42



**Family:**

Publication number	Publication date	Application number	Application date
AU2002228948 AA	20020527	AU20020228948	20011107
AU2002228948 BB	20060302	AU20020228948	20011107
AU200228948 A1	20020527	AU20020028948	20011107
AU200228948 A5	20020527	AU20020028948	20011107
CA2436920 AA	20020523	CA20012436920	20011107
CA2436920 C	20070703	CA20012436920	20011107
US2002180216 AA	20021205	US20010872690	20010531
US2003025334 AA	20030206	US20020260206	20020930
US2003111844 AA	20030619	US20030356886	20030203
US6518680 BB	20030211	US20010872690	20010531
US6710469 BB	20040323	US20030356886	20030203
US6800955 BB	20041005	US20020260206	20020930
WO0240861 A2	20020523	WO2001US47611	20011107
WO0240861 A3	20030130	WO2001US47611	20011107
WO0240861 C1	20030320	WO2001US47611	20011107

**Priority:**

US20000249493P 20001117 US20010872690 20010531 WO2001US47611 20011107  
 US20020260206 20020930 US20030356886 20030203

**Probable Assignee:** MCDAVID JR WILLIAM

**Assignee(s):** (std): MCDAVID JR WILLIAM ; MCDAVID WILLIAM K JR  
**Assignee(s):** WILLIAM K MCDAVID JR ; WILLIAM MCDAVID JR ; MCDAVID JR WILLIAM K ; MCDAVID WILLIAM K  
**Inventor(s):** (std): MCDAVID WILLIAM K JR ; MCDAVID WILLIAM K ; MCDAVID JR WILLIAM K  
**Inventor(s):** WILLIAM K MCDAVID JR  
**Agent(s):** WATERMARK PATENT AND TRADE MARKS ATTORNEYS; WATERMARK INTELLECTUAL PROPERTY PTY LTD; OLDHAM EDWARD H  
**Designated states:** AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EE 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 NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG UZ VN YU ZA ZW

**14) Family number: 20239246 (US2002036407A)**

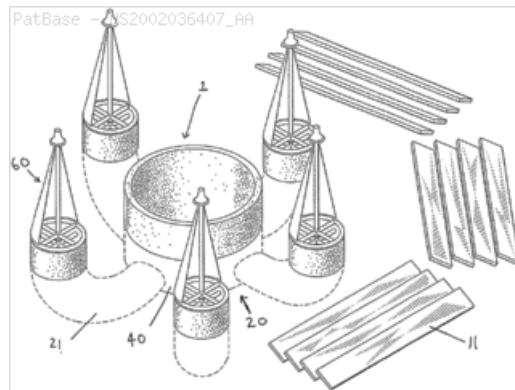
© PatBase

**Title:** WIND POWERED GENERATOR DEVICE

**Abstract:** A wind powered generating device comprises a tube cluster, a collector assembly, and a turbine assembly. The collector assemblies utilize sails that can be rotated to direct wind down through an inlet tube to a central outlet tube. The central outlet tube is narrowed at a portion, and a turbine is mounted at this narrowed portion to take advantage of the Venturi effect that accelerates the air as it passes the turbine. This permits reliable and efficient operation in areas that were not formerly considered windy enough to be economically feasible for the deployment of wind powered generating devices. Alternative embodiments of the invention include mechanisms for dealing with violent weather conditions, a first of which allows excess wind to bleed off beneath and between the sails, and a second which collapses and covers the sail with a protective sheath/sock.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)  
**International (IPC 1-7):** F03B15/06 F03D1/02 F03D1/04 F03D11/00 F03D7/00 F03D7/02 F03D9/00 H02P9/04  
**CPC:** Y10S261/87 F05B2220/62 F05B2240/13 Y02E10/72 F03D13/10 F03D1/04  
**European:** F03D1/04 R05B220/62 R05B240/13 Y02E10/72  
**US:** 244/53B 244/53R 261/DIG.87 290/5 290/55 290/5P 415/4.5



**Family:**

Publication number	Publication date	Application number	Application date
US2002036407 AA	20020328	US20010952812	20010914
US6703720 BA	20040309	US20000672923	20000928
US6717285 BB	20040406	US20010952812	20010914

**Priority:**

US20000672923 20000928 US20010952812 20010914

**Probable Assignee:** FERRARO MICHAEL

**Assignee(s):** FERRARO MICHAEL

**Inventor(s):** (std): FERRARO MICHAEL

**15) Family number: 29449234 (US6590300B)**

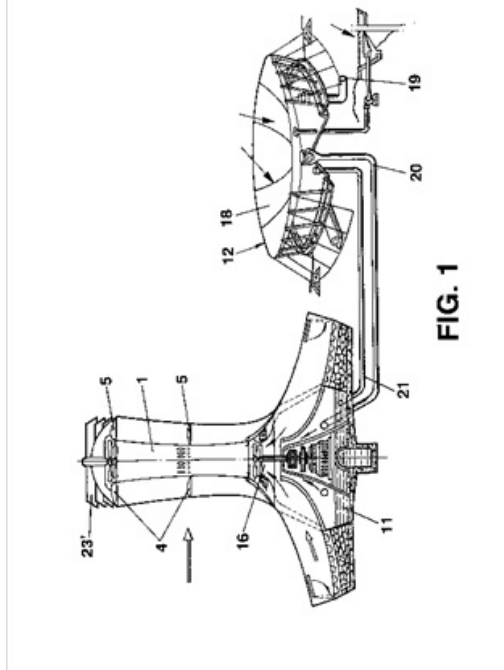
© PatBase

**Title:** CYCLONIC OR ANTI-CYCLONIC CONVERSION TOWER

**Abstract:** A cyclonic or anti-cyclonic conversion tower which consists of a central vortical duct (1), and at least one convector made up of two vertical membranes or screens (2) and (3), generated by a curve and which are limited at one of their sides by the central vortical duct (1), and at least two stiffeners (4) and (5) per convector, there being a blocking device (6) per convector, a diffuser (23), a deflector (24), and means for converting kinetic energy into electrical or mechanical energy, the blocking devices (6) having the shape of a guiding crown and can turn on the outer circumference of the central vortical duct (1), the general context adopting the shape of a cylinder or a cylinder ending in an inverted cone trunk.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D3/04 (Advanced/Invention); F03D1/00 F03D3/00 (Core/Invention)  
**International (IPC 1-7):** B04CA F03D1/04 F03D9/00  
**CPC:** F03D9/39 F03D9/007 F03D9/25 F03D1/04 F03D3/04 F05B2240/131 F05B2240/132 F05B2240/133 F05B2240/9111 F05B2250/232 Y02E10/728 Y02E10/74  
**European:** F03D1/04 F03D3/04 R05B240/131 R05B240/132 R05B240/133 R05B240/9111 R05B250/232 Y02E10/72N Y02E10/74  
**US:** 290/44 290/55 60/641.11

**Family:**

Publication number	Publication date	Application number	Application date
AT264455 E	20040415	AT20000927258T	20000519
AU200056457 A1	20001212	AU20000056457	20000519
AU200056457 A5	20001212	AU20000056457D	20000519
AU768193 B2	20031204	AU20000056457	20000519
BRPI0011594 A	20020305	BR2000PI11594	20000519
BRPI0011594 B1	20081118	BR2000PI11594	20000519
CA2374584 AA	20011120	CA20002374584	20000519
CA2374584 C	20080318	CA20002374584	20000519
DE60009895 D1	20040519	DE20006009895	20000519
DE60009895 D1	20040519	DE20006009895T	20000519
DE60009895 T2	20050421	DE20006009895T	20000519
DK1180597 T3	20040726	DK20000927258T	20000519
EP1180597 A1	20020220	EP20000927258	20000519
EP1180597 B1	20040414	EP20000927258	20000519
ES2166663 AA	20020416	ES19990001093	19990520
ES2166663 BA	20031201	ES19990001093	19990520
MA25360 A1	20011231	MA20010026414	20011116
MXPA01011827 A1	20020506	MX2001PA11827	20000519
PT1180597 T	20040831	PT20000927258T	20000519
US6590300 BA	20030708	US20010979604	20011116
WO0071893 A1	20001130	WO2000ES00184	20000519

**Priority:**

ES19990001093 19990520 WO2000ES00184 20000519

**Probable Assignee:** TRYP MULTISERV SERVICIOS SL**Assignee(s):** (std): TRYP MULTISERV S L ; TRYP MULTISERV SERVICIOS S L ; TRYP MULTISERV SERVICIOS SL ; PRIETO SANTIAGO FRANCISCO JAVI**Assignee(s):** PRIETO SANTIAGO FRANCISCO JAVIER ; PRIETO SANTIAGO FRANCISCO ; TRYP MULTISERV SERVICIOS SL AVENIDA DE LOS ; TRYP MULTISERV SL AVENIDA DE LOS PIRINEOS ; TRYP MULTISERV SL**Inventor(s):** (std): SANTIAGO FRANCISCO JAVIER PRIE ; PRIETO SANTIAGO FRANCISCO ; PRIETO SANTIAGO FRANCISCO JAVI ; PRIETO SANTIAGO F JAVIER ; SANTIAGO FRANCISCO JAVIER PRIETO ; PRIETO SANTIAGO FRANCISCO JAVIER ; FRANCISCO JAVIER PRIETO SANTIAGO**Inventor(s):** PREITO SANTIAGO FRANCISCO JAVIER**Agent(s):** COLLISON AND CO; RIDOUT AND MAYBEE LLP**Designated states:** AT AU BE BR CA CH CY DE DK ES FI FR GB GR IE IT LI LU MA MC MX NL PT SE US**16) Family number: 12159800** (US6043565A)

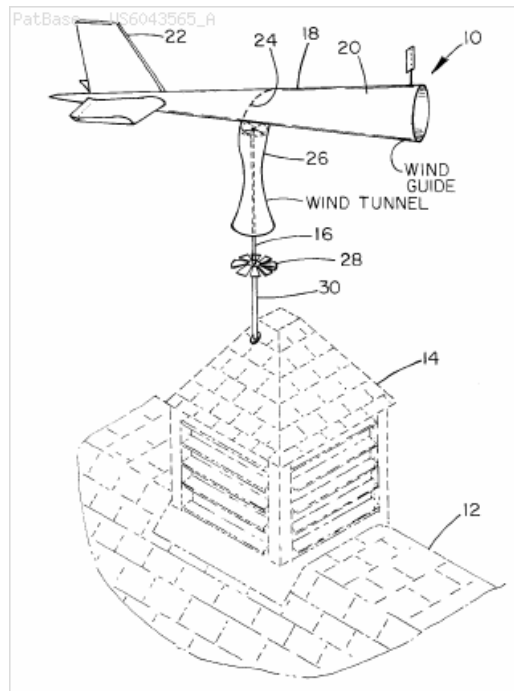
© PatBase

**Title:** ENERGY CONVERSION AND STORAGE SYSTEM

**Abstract:** An energy conversion and storage system is provided including a building having a roof mounted thereon. Also included is a propeller assembly mounted on the roof for generating electrical energy during the rotation of the propeller assembly. Next provided is a battery situated below a ground surface beneath the building and connected to the propeller assembly for storing energy received therefrom. A power converter is connected between the battery and an electrical system of the building for providing alternating current thereto when desired.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention);  
 F03D1/00 (Core/Invention)  
**International (IPC 1-7):** F03D9/00  
**CPC:** F03D1/04 F03D9/11 F03D9/25 F03D9/45 F05B2240/911  
 Y02B10/30 Y02E10/728 Y02E10/725  
**European:** F03D1/04 R05B240/911 Y02B10/30 Y02E10/72N  
**US:** 290/44 290/55



**Family:**

Publication number	Publication date	Application number	Application date
US6043565 A	20000328	US19980070574	19980430

**Priority:**

US19980070574 19980430

**Probable Assignee:**

STRANGE SHAWN

**Assignee(s):** (std):

STRANGE SHAWN

**Assignee(s):**

LES STRANGE SHAWN

**Inventor(s):** (std):

LES STRANGE SHAWN

**17) Family number: 8816028 (US5990568A)**

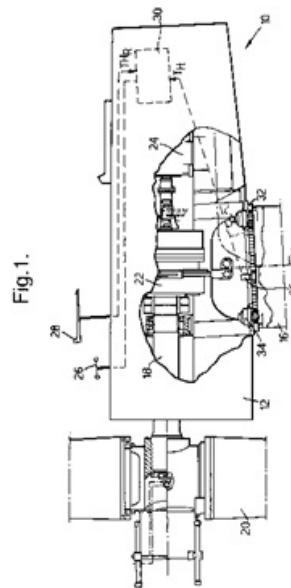
© PatBase

**Title:** YAWING SYSTEM FOR ADJUSTING A WIND TURBINE INTO A REQUIRED WIND DIRECTION BY TURNING THE TURBINE ABOUT A YAWING AXLE

**Abstract:** PCT No. PCT/SE96/01604 Sec. 371 Date Jun. 10, 1998 Sec. 102(e) Date Jun. 10, 1998 PCT Filed Dec. 6, 1996 PCT Pub. No. WO97/22804 PCT Pub. Date Jun. 26, 1997A yawing system for a wind turbine is provided. The system adjusts the wind turbine into a required wind direction against the wind by turning the turbine about a yawing axle (14) and counteracts periodic vibrations in a nacelle of the turbine as it turns around the yawing axle from being transmitted as pulsating moments to a tower structure. At least one hydraulic motor (34) turns the nacelle (12) about the yawing axle (14). A controllable throttle valve (50) is disposed in a parallel line to the hydraulic motor (34). A regulator (30) is capable of changing an opening diameter of said throttle valve (50) in accordance with a position of the nacelle in relation to the wind direction such that the periodic vibrations are utilized for turning the nacelle and correcting for changes in the wind direction during operation by a successive movement of the nacelle in small steps in the required wind direction during each periodic vibration around the yawing axle and at the same time as the nacelle is dampened.

**Classifications:**

**International (IPC 8-9):** F03D7/02 (Advanced/Invention);  
 F03D7/00 (Core/Invention)  
**International (IPC 1-7):** F03D7/02 F03D9/00 H02P9/04  
**CPC:** Y02P80/158 F03D7/0204 F05B2260/406 F05B2270/321  
 Y02E10/723  
**European:** F03D7/02B R05B260/406 R05B270/321 Y02E10/72F  
**US:** 290/44 290/52 290/53 290/54 290/55

**Family:**

Publication number	Publication date	Application number	Application date
AU199711551 A1	19970714	AU19970011551	19961206
DE69620229 D1	20020502	DE19966020229	19961206
EP0868608 A1	19981007	EP19960942703	19961206
EP0868608 B1	20020327	EP19960942703	19961206
SE510110 C2	19990419	SE19950004512	19951218
SE9504512 A	19970619	SE19950004512D	19951218
SE9504512 A0	19951218	SE19950004512	19951218
SE9504512 L	19970619	SE19950004512	19951218
US5990568 A	19991123	US19980091178	19980610
WO9722804 A1	19970626	WO1996SE01604	19961206

**Priority:**

SE19950004512 19951218 WO1996SE01604 19961206

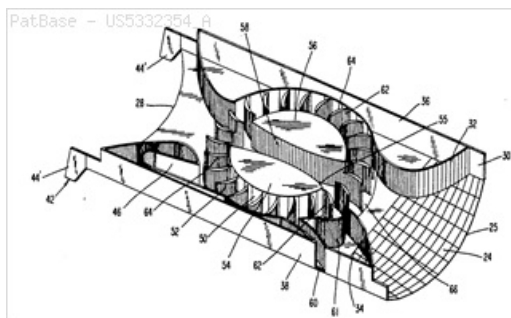
**Probable Assignee:** GE ENERGY NORWAY AS**Assignee(s):** (std): GE ENERGY NORWAY AS ; GE ENERGY NORWAY AS LYSAKER ; GE ENERGY NORWAY LYSAKER AS ; KVAERNER TURBIN AKTIEBOLAG ; KVAERNER ASA ; KVAERNER TURBIN AB ; HILDINGSSON STEN ; WESTIN TORBJOERN**Assignee(s):** GE ENERGY (NORWAY) AS ; GE ENERGY AS ; KVAERNER TURBIN AKTIEBOLAG BOX ; KVAERNER ASA PO BOX ; GE ENERGY PROF KOHTS VEI AS**Inventor(s):** (std): HILDINGSSON STEN ; WESTIN TORBJOERN ; WESTIN TORBJORN**Inventor(s):** TORBJOERN WESTIN ; STEN HILDINGSSON ; TORBJORN WESTIN**Designated states:** AT AU BE CH CN DE DK ES FI FR GB GR IE IT JP LU MC NL PL PT SE US**18) Family number: 12136045** (US5332354A)

© PatBase

**Title:** WIND TURBINE APPARATUS

**Abstract:** A wind driven turbine installation has a rotatable enclosure with closable inlet and outlet openings. The rotatable enclosure includes a driving arrangement and a wind direction sensor arrangement that monitors the incident wind direction and aligns the enclosure such that the inlet opening is aligned with the prevailing wind direction. The inlet opening includes an acceleration passage which increases wind velocity and directs the wind to a wind driven turbine device disposed within the installation. The turbine device includes a converging inlet passage, a secondary inlet passage, and an exhaust passage. A turbine rotor is disposed within the turbine device such that wind entering the primary inlet drives the rotor in part by following rotor vanes, and in part by passing across the rotor vanes. Wind entering the secondary passage is redirected toward the primary inlet and drives the rotor in the forward direction. Wind from the secondary passage is confluent with wind from the primary inlet that passes through the rotor. The confluent air flow exhausts through the rotor at the exhaust opening where that portion of the primary air which follows the rotor is also exhausted. The wind turbine device may be mounted for rotation about a vertical axis within the secondary housing so as to adjust itself to the direction of the prevailing wind.

**Classifications:****International (IPC 8-9):** F03D3/00 F03D3/04 (Advanced/Invention); F03D3/00 (Core/Invention)**International (IPC 1-7):** F03D3/00 F03D3/04**CPC:** Y10S415/907 F05B2240/217 Y02E10/74 F03D9/25 F03D3/0463**European:** F03D3/04E2D R05B240/217 Y02E10/74**US:** 415/2.1 415/4.2 415/907



**Family:**

Publication number	Publication date	Application number	Application date
CA2128167 AA	19950116	CA19942128167	19940715
US5332354 A	19940726	US19930091432	19930715
US5447412 A	19950905	US19940271758	19940707

**Priority:**

US19930091432 19930715      US19940271758 19940707      CA19942128167 19940715

**Probable Assignee:**

LAMONT JOHN S

**Assignee(s):** (std):

LAMONT JOHN S

**Inventor(s):** (std):

LAMONT JOHN S

**Agent(s):**

SMART AND BIGGAR

**19) Family number: 11245240** (US5464320A)

© PatBase

**Title:** SUPERVENTURI POWER SOURCE

**Abstract:** A superventuri power source comprises: (i) a series of at least two venturi tubes with at least one twosome of the tubes labeled an alpha- and a beta-venturi tube, respectively, and of predetermined successively increasing flow capacity, respectively; (ii) the alpha-venturi tube having an open entrance and an open exit to permit flow through the open entrance and out of the open exit; (iii) respective inlets of the twosome each facing the intended direction of flow; (iv) the open exit of the alpha-venturi tube placed adjacent the throat of the beta-venturi tube so that respective central axes of the twosome essentially merge into a central super-axis along an intended line of flow; (v) as referenced from the super-axis, the inlets of the alpha- and beta-venturi tubes being positioned to intercept relatively inner and outer portions of a selected medium as an alpha- and a beta-flow, respectively, whereby alpha-flow as exhaust from the open exit of the alpha-venturi tube joins accelerated beta-flow adjacent the throat of the beta-venturi tube; and (vi) a beta-turbine adjacent the throat of the beta-venturi tube wherein the beta-turbine includes at least one impulse blade with radial length less than about three-fourths the minimal distance between the central super-axis and the closest limit of the throat of the beta-venturi tube to recover useful rotary mechanical power.

**Classifications:**

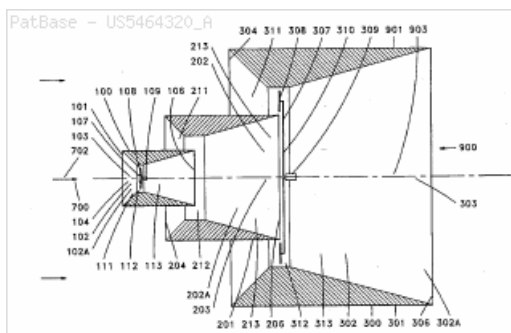
**International (IPC 8-9):** F03D1/02 F03D1/04 (Advanced/Invention)

**International (IPC 1-7):** F03D1/02 F03D1/04

**CPC:** F03D1/04 F05B2240/13 F05B2240/133 F05B2240/40 Y02E10/72

**European:** F03D1/04 R05B240/13 R05B240/133 R05B240/40 R05B250/07 Y02E10/72

**US:** 415/220 415/4.3 415/4.5 415/60



**Family:**

Publication number	Publication date	Application number	Application date
US5464320 A	19951107	US19940219192	19940328
US5836738 A	19981117	US19940239029	19940506

**Priority:**

US19930074023 19930602      US19940219192 19940328      US19940239029 19940506

**Probable Assignee:**

FINNEY CLIFTON D

**Assignee(s):** (std):

FINNEY CLIFTON D

**Inventor(s):** (std):

FINNEY CLIFTON D

**20) Family number: 4290351** (US4963761A)

© PatBase

**Title:** WIND-DRIVEN POWER GENERATOR

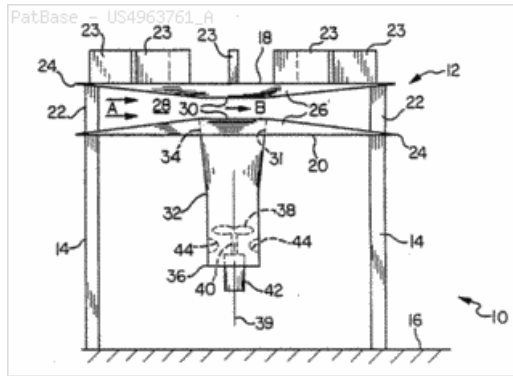
**Abstract:** A wind-driven power generator comprises a substantially horizontal roof including upper and lower roof members each having a peripheral edge and a contoured pressure reducing surface. The roof members are disposed in a spaced-apart relationship with the pressure reducing surfaces facing each other and defining an air space therebetween. The distance between the pressure reducing surfaces varies from a maximum spacing at the peripheral edges of the roof members to a minimum spacing at an intermediate location of the roof members. The power generator further includes a vertical suction pipe having an upper end connected to the lower roof member in flow communication with the air space at the intermediate location of the lower roof member. The lower end of the suction pipe extends downwardly from the lower roof member. An impeller is disposed in the suction pipe at the lower end thereof and rotates when air flows horizontally through the air space.



In accordance with Bernoulli effect, the increase in speed of the horizontal air flow at the intermediate location creates a pressure reduction in the air space at the upper end of the suction pipe and draws air up through the suction pipe to rotate the impeller. The impeller preferably is connected to an electrical generator that generates electricity when the impeller rotates.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)  
**International (IPC 1-7):** F03D5/00  
**CPC:** F03D1/04 F03D9/25 F03D13/20 F05B2240/131 F05B2250/5011 Y02B10/30 Y02E10/725 Y02E10/728  
**European:** F03D1/04 R05B240/131 R05B250/5011 Y02B10/30 Y02E10/72  
**US:** 290/55 415/4.2



**Family:**

Publication number	Publication date	Application number	Application date
US4963761 A	19901016	US19890304960	19890201

**Priority:**

US19890304960 19890201

**Probable Assignee:** WIGHT C CALVIN

**Assignee(s):** (std): WIGHT C CALVIN

**Inventor(s):** (std): WIGHT C CALVIN

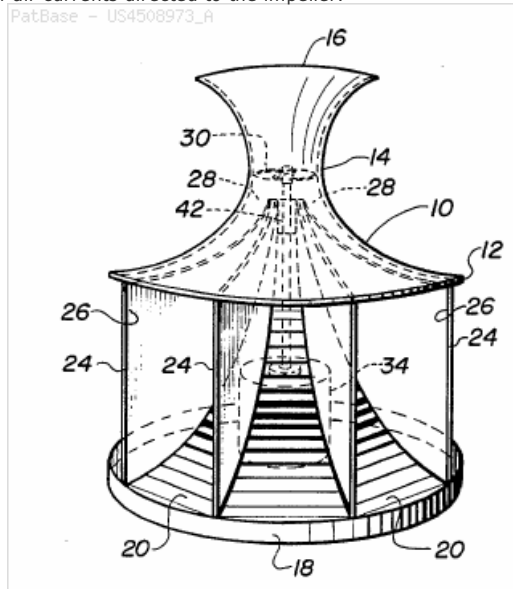
**21) Family number: 4716090 (US4508973A) © PatBase**

**Title:** WIND TURBINE ELECTRIC GENERATOR

**Abstract:** A wind-operated electric generator system of simple design including a stationary circular arrangement of segmental wind inlet passages extending around a vertical axis and having vertical inlet openings at the outer ends, the inlet openings having inwardly and upwardly curving walls extending from the inlet openings toward the central axis, the lower walls sloping upwardly an appreciably greater extent than the upper walls to form an inwardly and upwardly extending convergence with the inner portions of the upper walls to form constricted upwardly directed exit passages that merge into a Venturi throat in which a bladed impeller is mounted upon a vertical shaft which is connected to an electric generator, and the sides of the segmental inlet passages also converging toward the central axis and cooperating with the converging upper and lower walls to form an efficient Venturi effect to increase the speed of air currents directed to the impeller.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)  
**International (IPC 1-7):** F03D3/04  
**CPC:** Y10S415/907 Y02E10/72 F03D1/04  
**European:** F03D1/04 Y02E10/72  
**US:** 290/55 290/5S 415/208.2 415/2A 415/907



**Family:**

Publication number	Publication date	Application number	Application date
US4508973 A	19850402	US19840613808	19840525

**Priority:**

US19840613808 19840525

**Probable Assignee:** PAYNE JAMES M

**Assignee(s):** (std): PAYNE JAMES M

**Inventor(s):** (std): PAYNE JAMES M

**22) Family number: 4755224 (US4516907A) © PatBase**

**Title:** WIND ENERGY CONVERTER UTILIZING VORTEX AUGMENTATION

**Abstract:** A wind energy conversion apparatus is disclosed herein for converting the linear momentum of wind energy into a pair of concentrated, counter-rotating and side-by-side regions of high angular momentum which includes a wing having variable angle of attack positionable forward of the entrance to an elongated duct having a bell mouth including an upper, inner reflex angular surface leading into a bifurcated duct section terminating in a diffuser augmeter at the aft facing area of the duct and which includes propellers operable to extract energy from the angular momentum in the established regions for driving electric generators or generator therefrom.

**Classifications:**

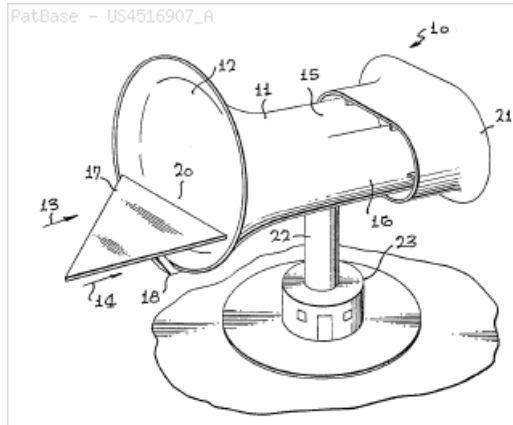
**International (ipc 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)

**International (ipc 1-7):** F03D1/02

**CPC:** Y10S415/914 F05B2250/232 Y02E10/72 F03D1/04

**European:** F03D1/04 R05B250/232 Y02E10/72

**US:** 415/2A 415/4 415/4.5 415/914 415/DIG.1



**Family:**

Publication number	Publication date	Application number	Application date
US4516907 A	19850514	US19830475219	19830314

**Priority:**

US19830475219 19830314

**Probable Assignee:**

EDWARDS SAMUEL S

**Assignee(s):** (std):

EDWARDS SAMUEL S

**Inventor(s):** (std):

EDWARDS SAMUEL S

**23) Family number: 4241626 (US4433544A)**

© PatBase

**Title:** WIND AND SOLAR POWERED TURBINE

**Abstract:** A power generating station (20) having a generator (28) driven by solar heat assisted ambient wind is disclosed. A first plurality of radially extending air passages (32) direct ambient wind to a radial flow wind turbine (34) disposed in a centrally located opening (46) in a substantially disc-shaped structure (21). A solar radiation collecting surface having black bodies (40) is disposed above the first plurality of air passages (32) and in communication with a second plurality of radial air passages (44). A cover plate (50) enclosing the second plurality of radial air passages (44) is transparent so as to permit solar radiation to effectively reach the black bodies (40). The second plurality of air passages (44) direct ambient wind and thermal updrafts generated by the black bodies (40) to an axial flow turbine (48) which also derives additional motive power from the air mass exhausted by the radial flow turbine (34). The rotating shaft (26) of the turbines (34) (48) drive the generator (28). The solar and wind driven power generating system operates in electrical cogeneration mode with a fuel powered prime mover (56). The system is particularly adapted to satisfy the power requirements of a relatively small community located in a geographic area having favorable climatic conditions for wind and solar powered power generation.

**Classifications:**

**International (ipc 8-9):** F03D9/00 F03G6/04 (Advanced/Invention); F03D9/00 F03G6/00 (Core/Invention)

**International (ipc 1-7):** F01B21/04 F01K23/00 F03G7/02 F03G7/04

**CPC:** Y10S415/907 Y10S415/909 F03G6/045 F05B2240/131

F05B2240/9111 Y02E10/465 Y02E10/728 F03D9/007 F03D1/04

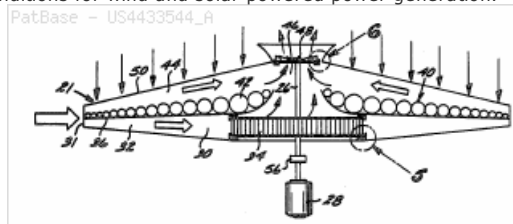
F03D3/04 F03D9/25 F03D9/39 Y02E10/74

**European:** F03D9/00E F03G6/04B R05B240/131 R05B240/9111

Y02E10/46U Y02E10/72H Y02E10/72N

**US:** 290/55 415/2R 415/907 415/909 415/DIG.8 60/641.12 60/698

60/716



**Family:**

Publication number	Publication date	Application number	Application date
US4433544 A	19840228	US19820379602	19820519

**Priority:**

US19820379602 19820519

**Probable Assignee:** NASA

**Assignee(s):** (std): NASA

**Assignee(s):** THE UNITED STATES OF AMERICA AS REPRESENTED BY THE ADMINISTRATOR OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ; ADMINISTRATOR NATIONAL AERONAUTICS AND SPACE ADMIN ; ADMINISTRATOR NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AS US GOV ; ADMINISTRATOR OF NATIONAL AERONAUTICS AND SPACE AD ; ADMINISTRATOR OF NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AS US GOV

**Inventor(s):** (std): HOLMES MARVIN ; KOH JIN L ; WELLS IVAN D

**24) Family number: 4411205 (US4457666A)**

© PatBase

**Title:** APPARATUS AND METHOD FOR DERIVING ENERGY FROM A MOVING GAS STREAM

**Abstract:** There is provided a method and device for converting energy from a moving gas stream with improved efficiency. One embodiment of the apparatus includes a frame mounted on a rotatable shaft. The frame has working blades and discharge blades mounted thereon, the arrangement of the discharge blades being sufficient to materially reduce any back pressure on the working blades. Flow control means are operatively connected to the frame for substantially normalizing the flow of the moving gas stream as it impinges on the working and discharge blades. There is also provided a method of converting a portion of the energy of a moving gas stream to mechanical energy including the steps of arranging a series of working blades on a frame such that a moving gas impinging on the working blades will rotate the frame; arranging a plurality of discharge blades on the frame to materially reduce any back pressure on the working blades when the working blades are exposed to the moving gas and directing the moving gas in a substantially normalized flow pattern to the working and secondary blades.

**Classifications:**

**International (IPC 8-9):** F03D3/04 (Advanced/Invention); F03D3/00 (Core/Invention)

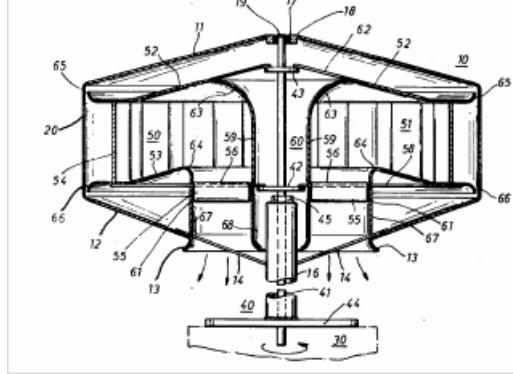
**International (IPC 1-7):** F03D3/04

**CPC:** Y10S415/907 Y02E10/74 F03D3/0472 F03D3/0481

**European:** F03D3/04E4B Y02E10/74

**US:** 415/1 415/143 415/203 415/2R 415/4.4 415/907

PatBase - US4457666\_A



**Family:**

Publication number	Publication date	Application number	Application date
US4457666 A	19840703	US19820368419	19820414

**Priority:**

US19820368419 19820414

**Probable Assignee:** WINDGRABBER A CORP OF TX CORP  
**Assignee(s): (std):** WINDGRABBER CORP  
**Assignee(s):** WINDGRABBER A CORP OF TX CORP  
**Inventor(s): (std):** SELMAN JR W ROBERTSON

**25) Family number: 3169777 (US4491749A)**

© PatBase

**Title:** Three-output level logic circuit

**Abstract:** A three-output level logic circuit comprises an output stage and a drive stage for driving the output stage. The output stage includes first and second MOS transistors connected in series between first and second power sources and a terminal is provided for producing three-state output signals. The drive stage includes third to sixth MOS transistors connected in series between the first and second power sources. A terminal is provided for supplying a data signal to the fourth and fifth MOS transistors. A control signal is supplied in common to the gate electrodes of the third to sixth MOS transistors. The conductivity types of the first to sixth MOS transistors are selected to operate the logic circuit with one control signal input and one data signal input.

**Classifications:**

**International (IPC 8-9):** H03K19/01 H03K19/0175

H03K19/094 (Advanced/Invention);

H03K19/01 H03K19/0175 H03K19/094 (Core/Invention)

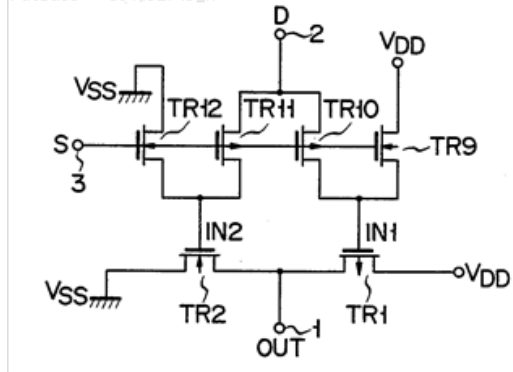
**International (IPC 1-7):** H03K19/00 H03K19/082 H03K19/094

**CPC:** H03K19/09425 H03K19/09429

**European:** H03K19/094M H03K19/094M2

**US:** 307/270 307/451 307/473 326/58 326/86

PatBase - US4491749\_A



**Family:**

Publication number	Publication date	Application number	Application date
DE3311025 A1	19831020	DE19833311025	19830325
JP58166830 A2	19831003	JP19820048570	19820326
US4491749 A	19850101	US19830477897	19830323

**Priority:**

JP19820048570 19820326

**Probable Assignee:** TOKYO SHIBAURA ELECTRIC CO  
**Assignee(s): (std):** TOKYO SHIBAURA ELECTRIC CO  
**Assignee(s):** TOKYO SHIBAURA DENKI K K KAWASAKI KANAGAWA JP ; TOKYO SHIBAURA DENKI KABUSHIKI KAISHA ; TOKYO SHIBAURA DENKI KK  
**Inventor(s): (std):** IWAMURA JUN ; IWAMURA ATSUSHI  
**Inventor(s):** IWAMURA JUN YOKOHAMA JP

**Title:** WINDMILL POWER SYSTEM

**Abstract:** The present invention relates to a windmill power system, particularly a passive solar powered windmill. Specifically, the present invention is directed to a windmill in which a solar chamber and a stack produce an upwardly flowing natural convection draft which is utilized to turn the blades of a horizontally positioned windmill. A conventional vertical windmill may also be used in conjunction with the horizontal windmill. The invention can also be used in a cogeneration system or with any heat source, with waste heat being used to heat the air in the solar chamber.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D9/00 (Advanced/Invention); F03D1/00 F03D9/00 (Core/Invention)

**International (IPC 1-7):** F03D3/02 F03G7/02 F03G7/06

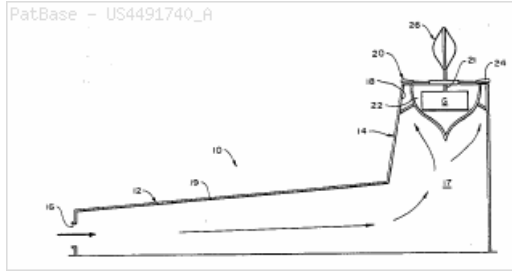
**CPC:** Y10S415/907 F05B2240/131 F05B2240/9111 Y02E10/465

Y02E10/728 F03D9/007 F03D1/02 F03D3/02 F03D9/25 F03D15/10

**European:** F03D1/04 F03D9/00E R05B240/131 R05B240/9111

Y02E10/46U Y02E10/72N

**US:** 290/55 415/2A 415/3 415/907 60/641.12



**Family:**

Publication number	Publication date	Application number	Application date
US4491740 A	19850101	US19820353183	19820301

**Priority:**

US19820353183 19820301

**Probable Assignee:**

SIEGEL EDWARD A

**Assignee(s):** (std):

SIEGEL EDWARD A

**Inventor(s):** (std):

SIEGEL EDWARD A

**Title:** AERO ELECTRO TURBINE

**Abstract:** A wind-powered electric generator using a concentrator structure and a focusing surface for focusing a wind stream onto a plurality of turbines, one of which is located within the concentrator structure, thereby providing for smaller structural size, as well as increased conversion efficiency.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)

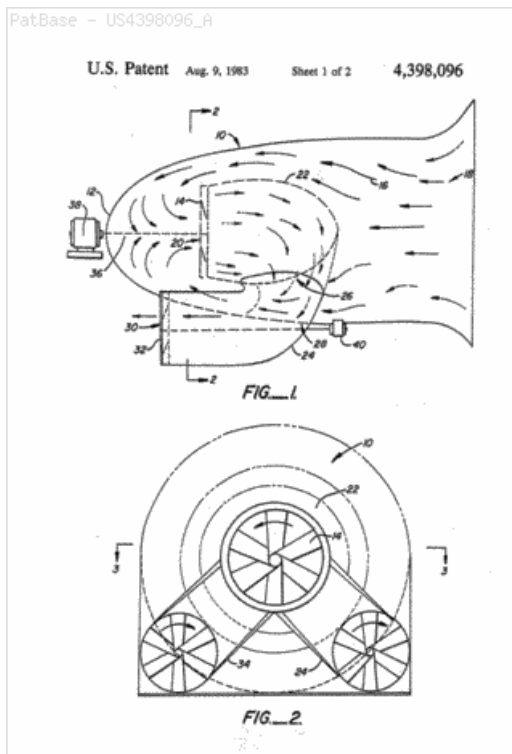
**International (IPC 1-7):** F03D1/02 F03D1/04

**CPC:** Y10S415/913 F05B2240/911 Y02E10/728 F03D1/04 F03D1/02 F03D9/25 F03D9/34 Y02E10/725

**European:** F03D1/04 R05B240/911 Y02E10/72N

**US:** 290/55 415/220 415/2R 415/3 415/4.5 415/66 415/913

415/DIG.7



**Family:**

Publication number	Publication date	Application number	Application date
US4398096 A	19830809	US19810284601	19810720

**Priority:**

US19810284601 19810720

**Probable Assignee:**

FAURHOLTZ EINAR

**Assignee(s):** (std):

FAURHOLTZ EINAR

**Inventor(s):** (std):

FAURHOLTZ EINAR

**Title:** VERTICAL WIND TURBINE POWER GENERATING TOWER

**Abstract:** The tower comprises a base supported on a framework which mounts a wind powered turbine having a vertical axis of rotation. Air is channeled to the turbine rotor to cause counterclockwise rotation thereof by upper and lower wind deflectors. The wind deflectors include channels which cause the oncoming air to swirl in a counterclockwise motion into the rotor transmitting energy thereto. The vertical struts of the framework are also configured so as to deflect the oncoming air into the rotor in a counterclockwise direction. The rotor itself comprises columns of vertically spaced, radially extending scoops and radially extending curved blades to ensure highly efficient energy conversion. The rotor is formed with no center shaft to allow free flow of air therethrough.

**Classifications:**

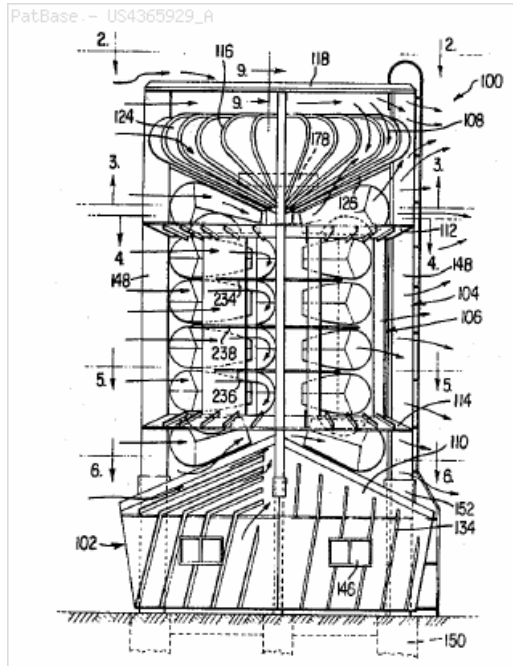
**International (IPC 8-9):** F03D3/04 (Advanced/Invention); F03D3/00 (Core/Invention)

**International (IPC 1-7):** F03D3/04

**CPC:** Y10S415/907 Y02E10/74 F03D3/04 F03D3/02 F03D9/12 F03D13/20 Y02E10/728 Y02E60/16

**European:** F03D3/04 Y02E10/74

**US:** 415/187 415/194 415/208.2 415/2R 415/53.1 415/907 416/197A



**Family:**

Publication number	Publication date	Application number	Application date
US4365929 A	19821228	US19810225781	19810116

**Priority:**

US19810225781 19810116

**Probable Assignee:**

RETZ PHILIP

**Assignee(s): (std):**

RETZ PHILIP

**Assignee(s):**

RETZ LOUISE N

**Inventor(s): (std):**

RETZ PHILIP

**Title:** SYSTEM FOR THE OBTAINING OF ENERGY BY FLUID FLOWS RESEMBLING A NATURAL CYCLONE OR ANTI-CYCLONE

**Abstract:** A system for obtaining energy by means of fluid flows resembling those of a natural cyclone or anti-cyclone comprises a cyclonic conversion tower constituted by a group of convectors all situated round an axis toward which there are directed vortical membranes or screens contained in trumpet-shaped revolution bodies. At its top or bottom the conversion tower optionally bears deflectors or diffusers which increase output. Devices for conversion of electrical or mechanical energy from the kinetic energy of the flow are located at both the top and the base of the tower of convectors. The convection tower optionally is situated on a base which permits the passage of solar radiation with the aim of utilizing its energy, the assembly being completed by a conventional heating system for alternative use.

**Classifications:**

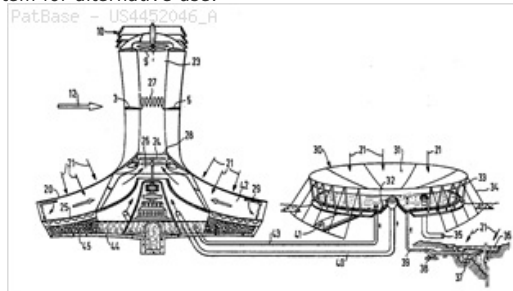
**International (IPC 8-9):** F03D1/04 F03D9/00 (Advanced/Invention); F03D1/00 F03D9/00 (Core/Invention)

**International (IPC 1-7):** F03D1/04 F03D3/04 F03D5/00 F03D9/00 F03G7/02 F24J2/00

**CPC:** Y10S415/907 Y10S415/909 F05B2240/131 F05B2240/9111 F05B2260/24 F28D2015/0291 Y02E10/44 Y02E10/465 Y02E10/728 Y02A20/141 Y02A20/142 F24S10/10 F03D9/39

**European:** F03D1/04 F03D9/00E F24J2/04C R05B240/131 R05B240/9111 R05B260/240 R28D15/02T Y02E10/44 Y02E10/46U Y02E10/72N

**US:** 290/55 415/2A 415/49 415/907 415/909 60/641.11 60/641.12 60/676



**Family:**

Publication number	Publication date	Application number	Application date
CH655157 A	19860327	CH19810004852	19810724
DE3128936 A1	19820519	DE19813128936	19810722
ES493713 A0	19821201	ES19800493713	19800724
ES8301330 A1	19821201	ES19800493713	19800724
FR2487441 A1	19820129	FR19810013641	19810710

FR2487441 B1	19860103	FR19810013641	19810710
GB2081390 A1	19820217	GB19810022951	19810724
GB2081390 B2	19841121	GB19810022951	19810724
US4452046 A	19840605	US19810281503	19810708

**Priority:**

ES19800493713 19800724

**Probable Assignee:** CENTRAL ENERGETIC CICLONIC

**Assignee(s):** (std): CENTRAL ENERGETIC CICLONIC ; ZAPATA MARTINEZ VALENTIN

**Assignee(s):** CENTRALES ENERGETICAS CICLONICAS ; CENTRALES ENERGETICAS CICLONICAS S A ; CENTRALES ENERGETICAS CICLONICAS SA

**Inventor(s):** (std): MARTINEZ VALENTIN ZAPATA ; MARTINEZH VALENTIN ZAPATA ; ZAPATA MARTINEZ VALENTIN

**Inventor(s):** VALENTIN ZAPATA MARTINEZ

**30) Family number: 8515633 (US4319141A)**

© PatBase

**Title:** TURBINE CONFIGURATIONS USING WIND AND SOLAR POWER

**Abstract:** A power system comprises structures which capture wind and solar energy to drive turbines for generating power. The structures can assume different forms, some intended to operate only from wind power. All in common, however, have lower air intake means which can accept the wind from any direction, air passageways that conduct the air upward through turbines, and venturi-assisted upper air exhaust vents which discharge the air downwind. Structures intended to operate on solar power in addition to wind have generally transparent sun-facing outer surfaces to admit solar radiation into the air passageways, a heat absorbing and transferring means inside the air passageways, and sufficient height that the solar heated air will rise with adequate velocity to operate the turbines. The invention includes an air inlet louver configuration which permits free entry of normal winds, but restricts entry of winds that have excessive force.

**Classifications:**

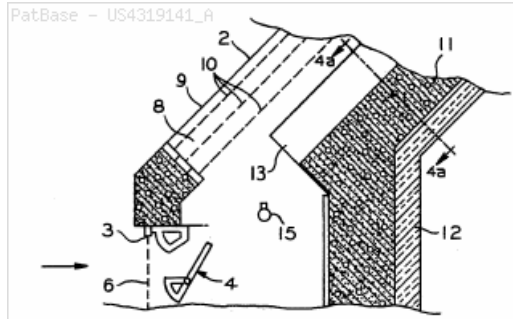
**International (IPC 8-9):** F03D9/00 (Advanced/Invention); F03D9/00 (Core/Invention)

**International (IPC 1-7):** F02C1/04

**CPC:** F03D9/007 F03D1/04 F03D9/25 F03D9/34 F03D13/20 F03D13/25 F03D80/70 F05B2240/131 F05B2240/9111 Y02E10/728 Y02E10/725

**European:** F03D9/00E R05B240/131 R05B240/9111 Y02E10/72N

**US:** 290/52 60/398 60/641.12



**Family:**

Publication number	Publication date	Application number	Application date
US4319141 A	19820309	US19800163940	19800630

**Priority:**

US19800163940 19800630

**Probable Assignee:** SCHMUGGE FREDERICK K

**Assignee(s):** (std): SCHMUGGE FREDERICK K

**Inventor(s):** (std): SCHMUGGE FREDERICK K

**31) Family number: 1418291 (US4801811A)**

© PatBase

**Title:** METHOD OF AND MEANS FOR GENERATING ELECTRICITY IN AN ARID ENVIRONMENT USING ELONGATED OPEN OR ENCLOSED DUCTS

**Abstract:** Electricity is generated in an arid environment using an open duct such as a canyon that is closed at one end and open at the other by erecting an air dam at the open end of the canyon and locating an air turbogenerator in the base of the dam. The air in the canyon is cooled by spraying water into the air as it enters the canyon, the cooled air flowing downwardly toward the base of the dam and through the turbogenerator. Preferably, the air dam is a flexible curtain, covering the outlet of the canyon, and suspension means are provided for suspending the flexible curtain at its top. The suspension means include supports built into the canyon above the top of the curtain, the support preferably being a suspension cable suspended between towers on opposite sides of the canyon such that the top of the flexible curtain is supported by support cables carried by the suspension cable.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03G6/04 F03G7/00 F03G7/04 (Advanced/Invention);

F03D1/00 F03G6/00 F03G7/00 (Core/Invention);

F03D (Subclass/Invention)

**International (IPC 1-7):** F03B17/00 F03D11/00 F03D5/00 F03D9/00

F03G7/00 F03G7/02 F03G7/04

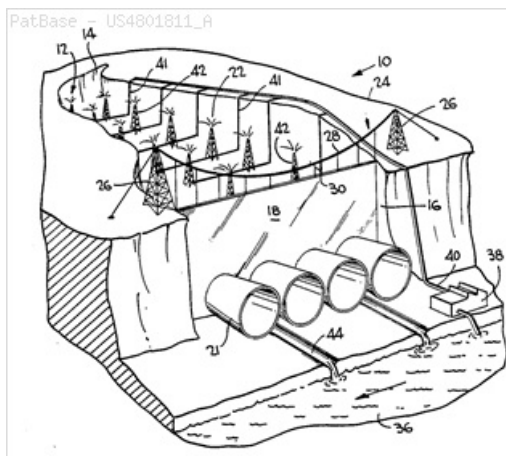
**CPC:** F03G7/04 F03G6/045 F05B2240/98 F05B2250/5011 Y02E10/465

F03D9/25 F03D9/37 F03D9/48 F03D80/00 Y02E10/725 Y02E10/728

**European:** F03D1/04 F03G6/04B F03G7/04 R05B240/98

R05B250/5011 Y02E10/10 Y02E10/46U Y02E10/72

**US:** 290/55 60/641.12



#### Family:

Publication number	Publication date	Application number	Application date
AR224575 A1	19811215	AR19810285304	19810513
AU198170480 A1	19811119	AU19810070480	19810512
AU550860 B2	19860410	AU19810070480	19810512
ES502471 A0	19830101	ES19810502471	19810513
ES512576 A0	19830301	ES19820512576	19820527
ES8302211 A1	19830101	ES19810502471	19810513
ES8303615 A1	19830301	ES19820512576	19820527
IL62797 A1	19880531	IL19810062797	19810505
IL76240 A0	19860131	IL19850076240	19850828
IL76240 A1	19900118	IL19810076240	19810505
MX152742 A	19851101	MX19810187322	19810514
US4801811 A	19890131	US19800149655	19800514
ZA8103170 A	19820526	ZA19810003170	19810513

#### Priority:

US19800149655 19800514 IL19810062797 19810505 IL19850076240 19850828

**Probable Assignee:** ORMAT TURBINES

**Assignee(s):** (std): ASSAF GAD ; BRONICKI LUCIEN ; BRONICKI LUCIEN YEHUDA ; GAD ASSAF ; ORMAT TURBINES

**Assignee(s):** GEOPHYSICAL ENGINEERING CO ; LUCIEN BRONICKI ; LUCIEN YEHUDA BRONICKI ; GEOPHYSICAL ENGINEERING CO 1900 WASHINGTON BLDG 132 ; GEOPHYSICAL ENGINEERING CO 1900 WASHINGTON BLDG 1325 FOURTH AVE SEATTLE WASH ; GAD ASSAF ; GEOPHYSICAL ENG CO ; GEOPHYSICAL ENGINEERING

**Inventor(s):** (std): ASSAF G ; ASSAF GAD ; BRONICKI L ; BRONICKI LUCIEN

**Inventor(s):** BRONICKI LUCIEN YEHUDA ; G ASSAF ; GAD ASSAF ; L BRONICKI ; LUCIEN BRONICKI

**Agent(s):** SPRUSON AND FERGUSON; ASPEN PHARMA PTY LTD; REINHOLD COHN AND PARTNERS

**32) Family number: 8458974 (US4309146A)**

© PatBase

**Title:** AMPLIFIED WIND TURBINE APPARATUS

**Abstract:** The invention relates to the utilization of wind energy and increasing the effects thereof for power generation. Amplified wind turbine apparatus is disclosed wherein ambient inlet air is prerotated in a first air rotation chamber (B) having a high pressure profile increasing the turbulence and Reynolds number thereof and a second rotation chamber (C) adjacent and downstream of the turbine has a low pressure core profile whereby flow across the turbine is accelerated and thereafter exits the turbine apparatus through a draft anti-interference device (D) which eliminates interference with ambient winds at the outlet of the turbine apparatus. Pivotable vanes 12 controlled in response to prevailing wind direction admit air to the chambers and aid in imparting rotation. A central core 20 may be utilized for creating the desired pressure profile in chamber B.

#### Classifications:

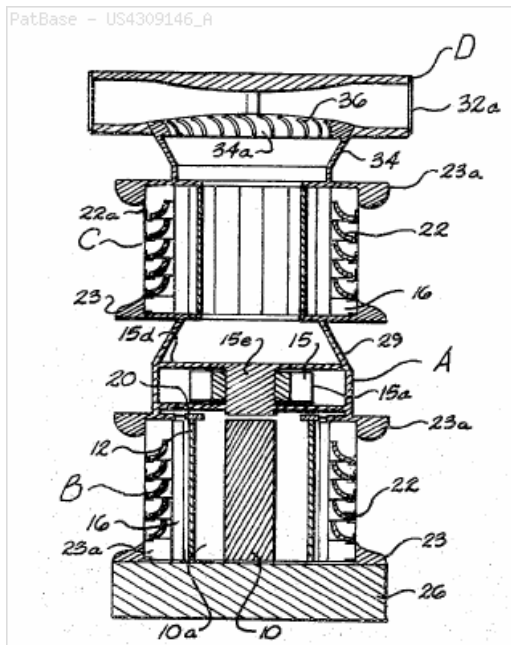
**International (ipc 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)

**International (ipc 1-7):** F03D1/04

**CPC:** Y10S415/909 F03D3/0409 F03D1/04 F05B2240/131 F05B2240/132 Y02E10/72 Y02E10/74

**European:** F03D1/04 R05B240/131 R05B240/132 Y02E10/72

**US:** 415/2R 415/4.2 415/4.4 415/909

**Family:**

Publication number	Publication date	Application number	Application date
US4309146 A	19820105	US19800129780	19800312

**Priority:**

US19800129780 19800312

**Probable Assignee:** NASA**Assignee(s):** (std): NASA

**Assignee(s):** THE UNITED STATES OF AMERICA AS REPRESENTED BY THE ; THE UNITED STATES OF AMERICA AS REPRESENTED BY THE ADMINISTRATOR OF THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION ; ADMINISTRATOR OF NATIONAL AERONAUTICS AND SPACE ADMINISTRATION AS US GOV

**Inventor(s):** (std): HEIN LEOPOLD A ; MYERS WILLIAM N**33) Family number: 8618820** (US4421452A)

© PatBase

**Title:** STATION FOR COLLECTING WIND ENERGY

**Abstract:** PCT No. PCT/FR80/00141 Sec. 371 Date May 28, 1981 Sec. 102(e) Date May 28, 1981 PCT Filed Sep. 26, 1980 PCT Pub. No. WO81/00887 PCT Pub. Date Apr. 2, 1981. Station for collecting wind energy comprised of a hollow column (1) including from top to bottom: a collecting housing (9) provided with inlet flaps (10), a transfer housing (12) including the driving elements (6) which drive through shafts (7) and (20) the operating members (8), an evacuation housing (16) provided with outer flaps (11). The arrows indicate the direction of circulation of airflow inside the station. The inner flaps (10) exposed to the wind open under the action of the latter which maintains the other flaps closed. The outer flaps (11) positioned out of the wind open under the action of the residual pressure remaining after acting on the driving members (6), whereas the other flaps are kept closed under the wind pressure. Safety valves (3) are provided for preventing any prejudicial overpressure. The station includes starting means for the driving elements under light wind and means for regulating the airflow.

**Classifications:**

**International (IPC 8-9):** F03D1/02 F03D1/04 F03D11/00  
F03D11/02 (Advanced/Invention);  
F03D1/00 F03D11/00 (Core/Invention)

**International (IPC 1-7):** F03D1/04 F03D11/02 F03D3/04 F03D7/04

**CPC:** Y10S415/909 F03D80/00 F05B2240/131 F05B2240/40  
F05B2240/9111 Y02E10/728 Y02E60/16 F03D9/12 F03D13/20

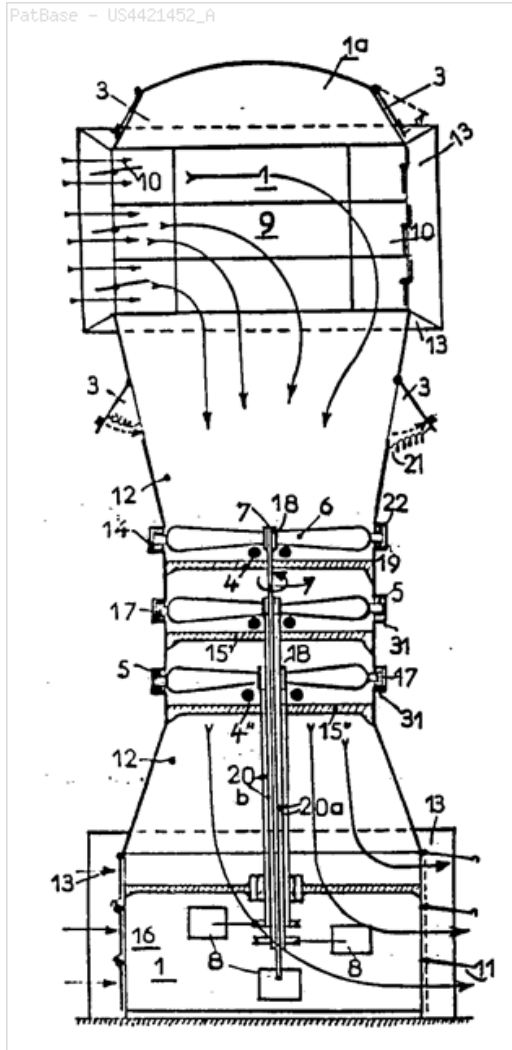
F03D1/025 F03D9/25 F03D80/70 F03D15/05 F03D1/04 Y02E10/725

**European:** F03D1/02 F03D1/04 F03D11/00 F03D11/02B

R05B240/131 R05B240/40 R05B240/9111 Y02E10/72D Y02E10/72N

**US:** 415/122.1 415/122A 415/4 415/4.2 415/68 415/909 415/DIG.8





**Family:**

Publication number	Publication date	Application number	Application date
EP0038805 A1	19811104	EP19800901850	19810408
FR2466637 A1	19810410	FR19790024285	19790928
FR2466637 B1	19840413	FR19790024285	19790928
FR2484026 A2	19811211	FR19800012382	19800604
FR2484026 B2	19841012	FR19800012382	19800604
FR2573818 A2	19860530	FR19840004150	19840316
US4421452 A	19831220	US19810268992	19810528
WO8100887 A1	19810402	WO1980FR00141	19800926

**Priority:**

FR19790024285 19790928      FR19800012382 19800604      WO1980FR00141 19800926  
 FR19840004150 19840316

**Probable Assignee:**

ROUGEMONT RAOUL

**Assignee(s):** (std):

ROUGEMONT R ; ROUGEMONT RAOUL

**Inventor(s):** (std):

ROUGEMONT R ; ROUGEMONT RAOUL

**Designated states:**

CH DE GB NL SE US

**34) Family number: 1327647 (US4481774A)**

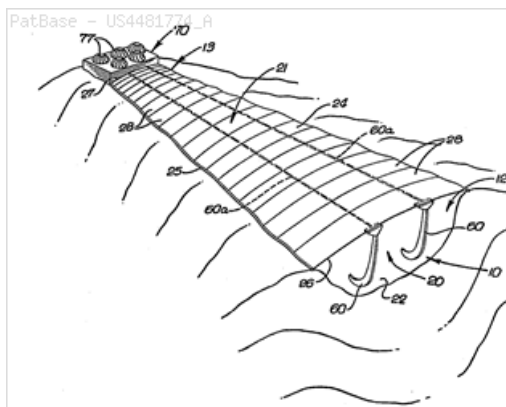
© PatBase

**Title:** SOLAR CANOPY AND SOLAR AUGMENTED WIND POWER STATION

**Abstract:** A canopy extends over a canyon to provide an air channel with a lower entrance inlet and an upper discharge outlet. Sunlight passes through the canopy to effect heating of the air in the channel and airflow toward the upper outlet. A wind turbine may be driven by the discharging airflow.

**Classifications:**

**International (IPC 8-9):** F03D1/00 F03D1/02 F03D1/04 F03D9/00  
 F03G6/00 F03G6/04 F24J2/50 (Advanced/Invention);  
 F03D1/00 F03G6/00 (Advanced/Non-invention);  
 F03D1/00 F03D9/00 F03G6/00 F24J2/00 (Core/Invention)  
**International (IPC 1-7):** E04B1/342 E04H15/20 E04H5/02 F03D1/00  
 F03D1/04 F03G7/00 F03G7/02 F03G7/04 F24J3/02 G03G7/00  
**CPC:** F24S10/00 F03D9/25 F03D9/48 F03G6/045 F05B2240/98  
 F05B2250/5012 Y02E10/44 Y02E10/465 Y02E10/725 F24S80/50  
 Y02E10/728  
**European:** F03D1/04 F03D9/00E F03G6/04B F24J2/04 F24J2/50  
 R05B240/98 R05B250/5012 Y02E10/44 Y02E10/46U Y02E10/72H  
**US:** 60/398 60/641.12 60/641.14 60/641.8



**Family:**

Publication number	Publication date	Application number	Application date
AU197842738 A1	19790726	AU19780042738	19781220
AU527812 B2	19830324	AU19780042738	19781220
CA1156842 A1	19831115	CA19790319295	19790109
DE2962012 D1	19820311	DE19792962012	19790117
EP0003185 A2	19790725	EP19790300071	19790117
EP0003185 A3	19790808	EP19790300071	19790117
EP0003185 B1	19820203	EP19790300071	19790117
IT1110753 A	19860106	IT19790019374	19790117
IT7919374 A0	19790117	IT19790019374	19790117
JP1410338 C3	19871124	JP19790004414	19790118
JP54112431 A2	19790903	JP19790004414	19790118
JP62015755 B4	19870409	JP19790004414	19790118
MX145073 A	19820104	MX19790176298	19790116
US4481774 A	19841113	US19810330238	19811214

**Priority:**

US19780870336 19780118 CA19790319295 19790109 US19790024159 19790326  
 US19800113627 19800121 US19810330238 19811214

**Probable Assignee:** SNOOK S R

**Assignee(s):** (std): SNOOK S R ; SNOOK STEPHEN R ; SNOOK STEPHEN ROBERT

**Assignee(s):** SNOOK SR

**Inventor(s):** (std): SNOOK STEPHEN ROBERT ; SNOOK STEPHEN R ; SUCHIIBUN ROBAATO SUNUUKU

**Inventor(s):** SNOOKS R ; STEPHEN ROBERT SNOOK

**Agent(s):** SF; SPRUSON AND FERGUSON; GOWLING LAFLEUR HENDERSON LLP

**Designated states:** BE CH DE FR GB LU NL SE

**35) Family number: 7441391 (US4154556A)**

© PatBase

**Title:** DEVICES FOR UTILIZING THE POWER OF THE WIND

**Abstract:** A wind power device incorporating a curved duct through which a rotatable shaft passes in a direction such that the axis of the shaft is normal to the plane containing one end of the curved duct and which continues through the curving portion of the wall of the duct opposite said end of the duct to the outside of the duct where it is connectible to a power-consuming device. A set of radially extending helically curved aerofoil blades is attached to the shaft at said end of the duct. Support means mounted on the blades at the tips thereof rest on a fixed annular guide means surrounding said end of the duct. Mounting means supports the duct in a position in which the shaft is vertical.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention);

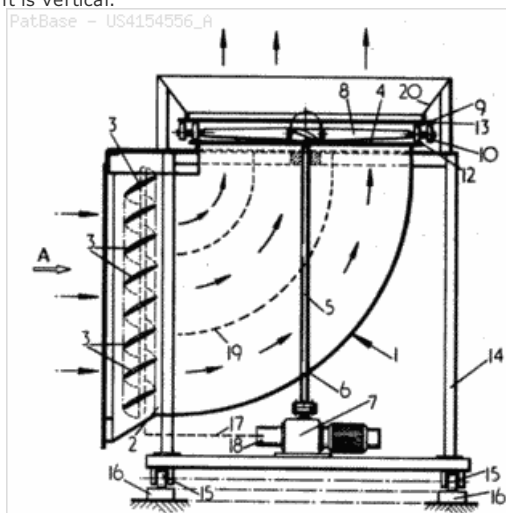
F03D1/00 (Core/Invention)

**International (IPC 1-7):** F03D7/04

**CPC:** F03D1/04 F03D13/10 Y02E10/72

**European:** F03D1/04 Y02E10/72

**US:** 415/151 415/2 415/4.2 415/4.4



**Family:**

Publication number	Publication date	Application number	Application date
US4154556 A	19790515	US19770802586	19770601

**Priority:**

US19770802586 19770601

**Probable Assignee:**

WEBSTER GEORGE W

**Assignee(s):** (std):

WEBSTER GEORGE W

**Inventor(s):** (std):

WEBSTER GEORGE W

**36) Family number: 7108512** (US4122675A)

© PatBase

**Title:** SOLAR HEAT SUPPLEMENTED CONVECTION AIR STACK WITH TURBINE BLADES

**Abstract:** A high rise building is provided including upstanding peripheral wall portions and at least one of the peripheral wall portions includes an upstanding air flow passage extending therealong. Horizontally outwardly projecting and downwardly opening hollow snout-like shrouds define air inlets opening outwardly and downwardly along the one upstanding peripheral wall portion and inwardly into the air flow passage at points spaced vertically therealong. A rotary turbine including an inlet and outlet is supported from an upper portion of the building and the upper end portion of the air flow passage is communicated with the inlet of the turbine. The turbine includes a rotary output shaft and a generator is driven from the rotary output shaft of the turbine for generating electrical current.

**Classifications:**

**International (IPC 8-9):** F03D11/04 F03G6/04 F24J2/20 F24S10/50 H02K7/18 (Advanced/Invention);

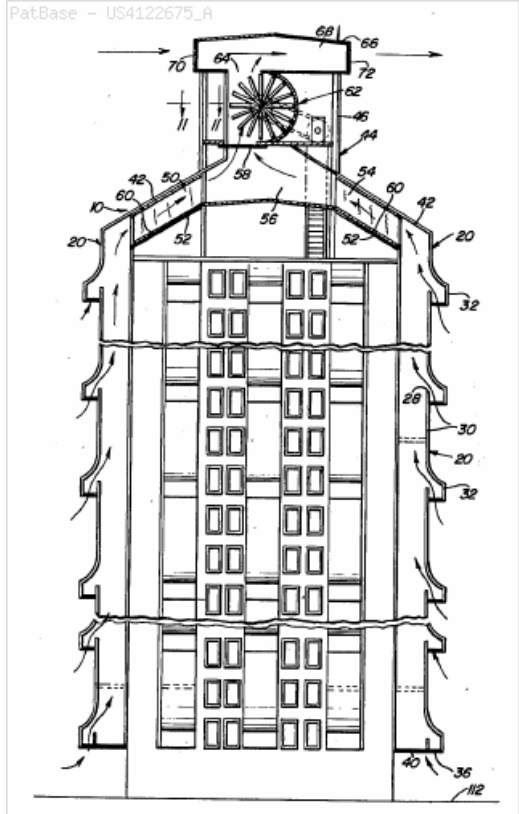
F03D11/00 F03G6/00 F24J2/04 H02K7/18 (Core/Invention)

**International (IPC 1-7):** F02C1/02 F03G7/00

**CPC:** Y02B10/70 F05B2240/911 Y02B10/20 Y02B10/30 Y02E10/44 Y02E10/465 Y02E10/728 F03D13/20 F03G6/045 F24S10/50 F03D3/04 F03D9/25 F03D9/45 F03D15/10 Y02E10/74

**European:** F03D11/04 F03G6/04B F24J2/20 H02K7/18A2W R05B240/911 Y02B10/20 Y02B10/30 Y02E10/44 Y02E10/46U Y02E10/72N

**US:** 327/141 327/28 415/2.1 52/173.3 60/398 60/641.14



**Family:**

Publication number	Publication date	Application number	Application date
US4122675 A	19781031	US19770778784	19770317

**Priority:**

US19770778784 19770317

**Probable Assignee:**

POLYAK JACK

**Assignee(s):** (std):

POLYAK JACK

**Inventor(s):** (std):

POLYAK JACK

**37) Family number: 6999957** (US4116581A)

© PatBase

**Title:** SEVERE CLIMATE WINDMILL

**Abstract:** A windmill for use in areas having severe climates, comprises a substantially spherical assembly supported above the ground on a plurality of legs. The structure is divided into two hemispheres. The lower hemisphere is rigidly supported by the legs, and the upper hemisphere is adapted to rotate coaxially with respect to the lower hemisphere. One side of the upper hemisphere is cut away to form an air scoop which when directed into the wind causes the wind to flow into the scoop and to be deflected downwardly into the lower hemisphere. The lower hemisphere is truncated at its lower end by a horizontal plane of selected diameter and the wind flowing into the scoop flows vertically outward from the exit opening in the bottom of the lower hemisphere. An axial structure supports a shaft carrying a multi-bladed turbine of selected diameter centered in the exit opening. The shaft is connected to a generator inside of said axial structure. Means are provided for steering the air scoop into the wind.

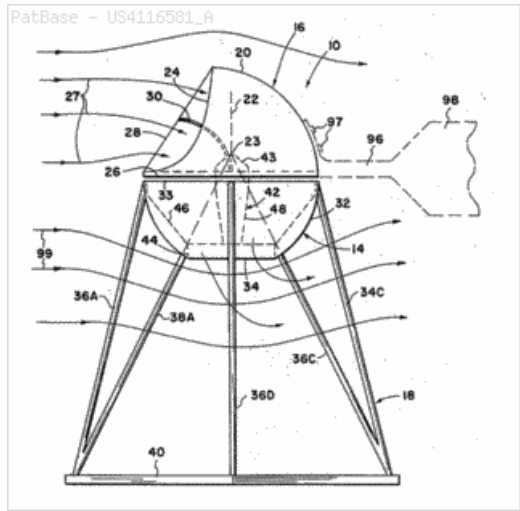
**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)

**International (IPC 1-7):** F03D7/00

**CPC:** F03D1/04 F03D13/20 F03D80/70 Y02E10/728

**European:** F03D1/04 Y02E10/72



**Family:**

Publication number	Publication date	Application number	Application date
US4116581 A	19780926	US19770761398	19770121

**Priority:**

US19770761398 19770121

**Probable Assignee:** BOLIE VICTOR W  
**Assignee(s):** (std): BOLIE VICTOR W  
**Inventor(s):** (std): BOLIE VICTOR W

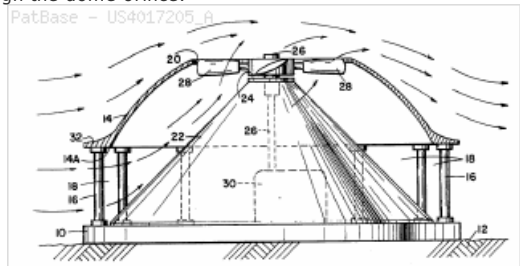
**38) Family number: 1384668 (US4017205A)** © PatBase

**Title:** VERTICAL AXIS WINDMILL

**Abstract:** A vertical axis windmill is taught having a horizontal base, preferably circular in configuration, sitting on the earth's surface, a dome having a horizontal bottom spaced above the base supported on a plurality of columns to provide an annular space below the dome bottom, a conical baffle positioned on the base below the dome, the conical axis being coincidental with the vertical axis of the dome, the dome having a circular roof orifice therein coaxial with the axis of the conical baffle, a vertical shaft supported coaxially by the conical baffle and an impeller affixed to the shaft and positioned in the dome circular orifice. Wind blowing relative to the windmill causes a lifting force by the aerodynamic effect of the dome, the wind passing upwardly through the annular opening and upwardly through the dome orifice, imparting rotational energy to the impeller. Power using apparatus such as generators or the like may be attached to the rotating vertical shaft. An alternate embodiment includes the utilization of a plurality of vertical vanes between the base and the dome, exterior of the conical baffle to more effectively direct the flow of air upwardly through the dome orifice.

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)  
**International (IPC 1-7):** F03D7/00  
**CPC:** Y10S415/907 F03D1/04 F05B2240/131 F05B2240/9111 Y02B10/30 Y02E10/728  
**European:** F03D1/04 R05B240/131 R05B240/9111 Y02B10/30 Y02E10/72N  
**US:** 415/2 415/208.1 415/208.2 415/8 415/907 454/15



**Family:**

Publication number	Publication date	Application number	Application date
US4017205 A	19770412	US19750633387	19751119

**Priority:**

US19750633387 19751119

**Probable Assignee:** BOLIE VICTOR W  
**Assignee(s):** (std): BOLIE VICTOR W  
**Inventor(s):** (std): BOLIE VICTOR W

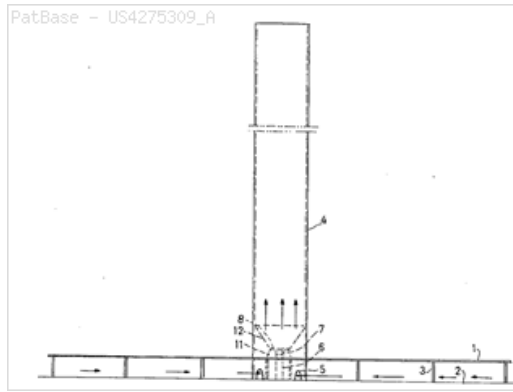
**39) Family number: 8273109 (US4275309A)** © PatBase

**Title:** SYSTEM FOR CONVERTING SOLAR HEAT TO ELECTRICAL ENERGY

**Abstract:** This invention consists of a system and apparatus for converting solar heat to electrical energy by accumulating normally non-heated air under a transparent roof which covers a vast area of sand, gravel, or rock covered ground. The accumulated air is sucked into a very high tower of large diameter which is centrally located on said roof, by the existing air pressure differential. A central pedestal located within the tower, at its base, supports an electrical generator which is powered by an impeller which is activated by the air rising in the tower. A pair of truncated cones joined at their truncated openings provide a reduced area within which the impeller is located in order to increase the air velocity at this point, and the air entering the impeller is previously caused to assure a rotary motion by angular air entrances in an enclosure around said pedestal.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D9/00  
 F03G7/02 (Advanced/Invention);  
 F03D1/00 F03D9/00 (Core/Invention)  
**International (IPC 1-7):** F03D11/04 F03G7/02 F24J3/02  
**CPC:** Y10S415/907 Y10S415/909 Y10S416/08 F05B2240/131  
 F05B2240/132 F05B2240/9111 Y02B10/30 Y02B10/70 Y02E10/728  
 F03D9/007 F03D9/25 F03D9/34 Y02E10/725  
**European:** F03D1/04 F03D9/00E R05B240/131 R05B240/132  
 R05B240/9111 Y02B10/20 Y02B10/30 Y02B10/70 Y02E10/72N  
**US:** 290/1.00R 290/1R 290/44 290/55 415/907 415/909 416/DIG.8  
 60/641.12



**Family:**

Publication number	Publication date	Application number	Application date
AU197610974 A1	19770818	AU19760010974	19760210
AU499934 B2	19790503	AU19760010974	19760210
US4275309 A	19810623	US19790042571	19790525

**Priority:**

US19750621947 19751014      US19770817819 19770721      US19790042571 19790525

**Probable Assignee:** LUCIER R  
**Assignee(s):** (std): LUCIER R ; LUCIER ROBERT E  
**Assignee(s):** INGLES R  
**Inventor(s):** (std): LUCIER ROBERT E ; LUCIER R ; LUCIER ROBERT  
**Inventor(s):** ROBERT LUCIER ; INGLES R ; R LUCIER  
**Agent(s):** CA; DAVIES COLLISON CAVE PTY LTD

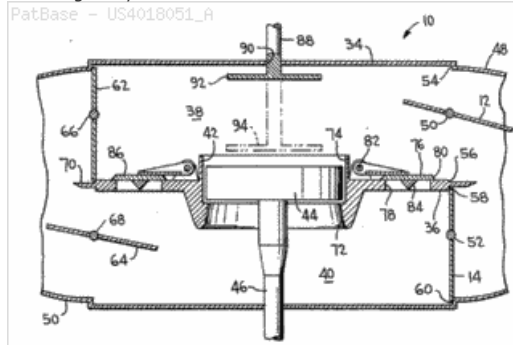
**40) Family number: 1386031 (US4018051A)** © PatBase

**Title:** OMNIDIRECTIONAL AIR DRIVEN POWER GENERATING SYSTEM

**Abstract:** The omnidirectional air driven power generating system is a system of valves and chambers which translate the potential energy of an air pressure differential into kinetic energy in the form of a compact air current of accelerated velocity. The valves relieve overpressure and assure one-way flow through an air driven power converter, regardless of the direction of the wind. The pressure differential is created across any convenient structure such as a house, church, cliff or mountain. A simple cruciform structure is disclosed which optimizes the pressure differential. There is no limit to the size or weight of the deflecting surfaces, and the power producing potential of the system increases as the projected frontal area which is exposed to the wind increases. The rotors of the air driven power converter are enclosed within a housing which provides a sheltered environment such that operation at its rated output power can continue through any extreme of wind or turbulence.

**Classifications:**

**International (IPC 8-9):** F03D3/04 (Advanced/Invention);  
 F03D3/00 (Core/Invention)  
**International (IPC 1-7):** F03D3/04  
**CPC:** F03D3/04 F03D1/04 F03D9/34 F03D80/00 Y02B10/30  
 Y02E10/74 Y02E10/728  
**European:** F03D3/04 Y02B10/30 Y02E10/74  
**US:** 290/55 415/4.1 415/4.3 60/398 60/407



**Family:**

Publication number	Publication date	Application number	Application date
US4018051 A	19770419	US19760679508	19760422

**Priority:**

US19750583530 19750604      US19760679508 19760422

**Probable Assignee:** GAY DAVID  
**Assignee(s):** (std): GAY DAVID  
**Inventor(s):** (std): GAY DAVID

**41) Family number: 1332598 (US3986786A)** © PatBase

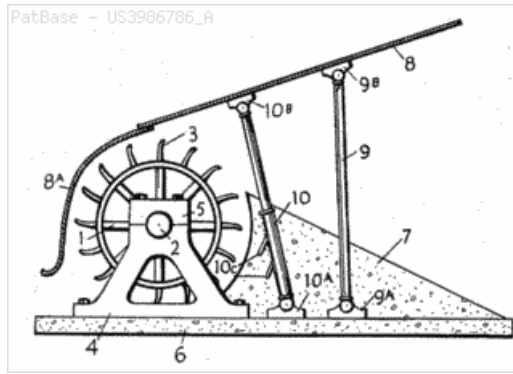
**Title:** WIND MOTORS

**Abstract:** Wind motors which are propelled by the impact of the wind against the vanes of an impeller wheel, that have wind channeling devices that gather the wind from a large area and funnel it at increased density and pressure to apply multiplied impact against the impeller vanes.

**Classifications:**

**International (IPC 8-9):** F03D3/04 (Advanced/Invention);  
 F03D3/00 (Core/Invention)

**International (IPC 1-7):** F03B3/18 F03D5/04  
**CPC:** F03D3/0463 F03D3/02 F03D80/70 F03D3/0454 F05B2200/13  
 F05B2240/2212 F05B2240/40 Y02E10/74  
**European:** F03D3/04E2B  
**US:** 415/151 415/2 415/2.1 415/3 415/4.1 415/4.2 415/4.4 415/60



**Family:**

Publication number	Publication date	Application number	Application date
US3986786 A	19761019	US19750636668	19751201
US3988072 A	19761026	US19740484148	19740628
US4017204 A	19770412	US19750636667	19751201

**Priority:**

US19740484148 19740628      US19750636667 19751201      US19750636668 19751201

**Probable Assignee:** SELLMAN DONALD L

**Assignee(s): (std):** SELLMAN DONALD L

**Assignee(s):** DOHM GRANT

**Inventor(s): (std):** SELLMAN DONALD L

**42) Family number: 22779150 (US3048006A)** © PatBase

**Title:** THERMAL CURRENT DRIVEN POWER GENERATING APPARATUS

**Abstract:** (Claim 1) 1. Thermal current driven power generating apparatus, comprising: an upright tower open at both ends; said tower being double walled and having an inner sleeve and an outer sleeve concentrically disposed and spaced to define an annular chamber; a shaft axially disposed and rotatably mounted in said tower; a plurality of fans fixed to and vertically spaced on said shaft; heat exchanger means operatively coupled to said annular chamber; means to circulate a heat conducting fluid medium through said chamber and said heat exchanger; said heat exchanger being disposed across said tower to add to the heating of air in the internal and upper portions of the tower, whereby the resultant thermal current in the tower causes said fans to rotate; and power take-off means connected to said shaft.

**Classifications:**

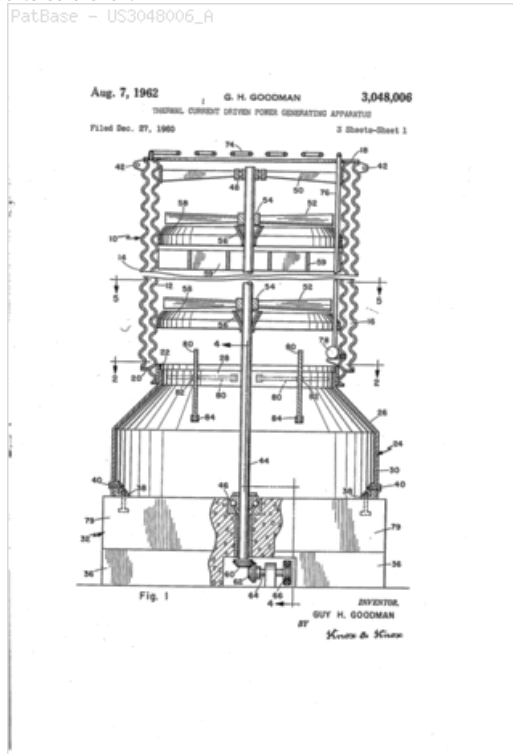
**International (IPC 8-9):** F03G7/04 (Advanced/Invention);  
 F03G7/00 (Core/Invention)

**International (IPC 1-7):** F01K23/16 F03G7/02

**CPC:** Y10S261/11 Y10S261/87 Y10S415/909 F03G7/04

**European:** F03G7/04 Y02E10/10

**US:** 261/DIG.11 261/DIG.87 415/124.2 415/146 415/176 415/179  
 415/199.5 415/208.1 415/218.1 415/222 415/4.2 415/909 60/641.12



**Family:**

Publication number	Publication date	Application number	Application date
US3048006 A	19620807	US19600078573	19601227

**Priority:**

US19600078573 19601227

**Probable Assignee:** ALEXANDER J E BEARD

**Assignee(s): (std):** ALEXANDER J E BEARD

**Inventor(s): (std):** GOODMAN GUY H

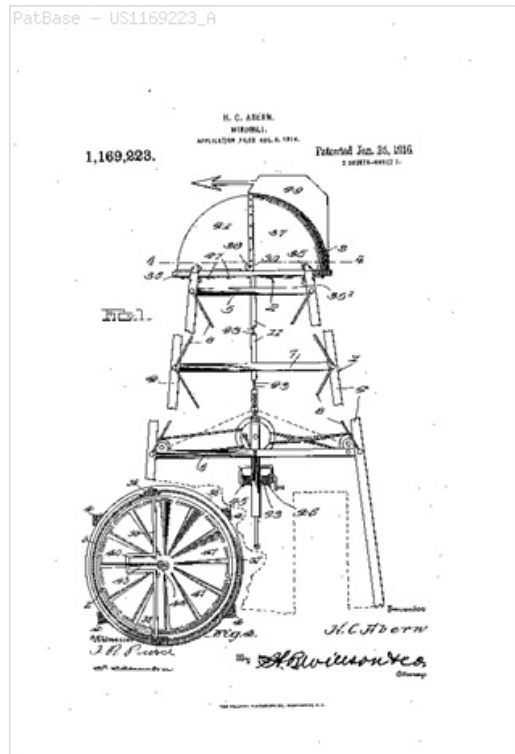
**Title:** WINDMILL.

**Classifications:**

**International (IPC 1-7):** F03D3/04

**CPC:** F03D3/00 Y02E10/74 F03D3/0472 F03D1/04 F03D13/20 Y02E10/728

**US:** 415/151 415/4.4



**Family:**

Publication number	Publication date	Application number	Application date
US1169223 A	19160125	US19140855495	19140806

**Priority:**

US19140855495 19140806

**Probable Assignee:**

ABERN HALSEY C

**Assignee(s): (std):**

ABERN HALSEY C

**Assignee(s):**

HALSEY C ABERN

**Inventor(s): (std):**

ABERN HALSEY C

**Inventor(s):**

HALSEY C ABERN

**Title:** ATMOSPHERIC POWER-GENERATOR.

**Classifications:**

**International (IPC 8-9):** F03D1/04 F03D80/70 F03D9/00

F03D9/35 (Advanced/Invention);

F03D1/00 F03D9/00 (Core/Invention)

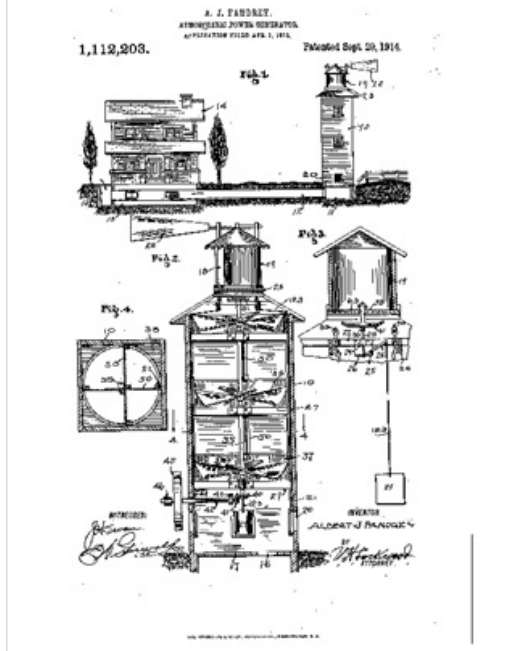
**International (IPC 1-7):** F03D1/04

**CPC:** Y10S415/909 F05B2240/131 F03D9/35 F03D1/025 F03D9/12

F03D15/10 F03D80/70 Y02E10/728

**European:** F03D1/04 F03D9/00E R05B240/131 Y02E10/72

**US:** 415/125 415/159 415/193 415/2.1 415/4.4 415/909



**Family:**

Publication number	Publication date	Application number	Application date
US1112203 A	19140929	US19130758118	19130401

**Priority:**

US19130758118 19130401

**Probable Assignee:**

FANDREY ALBERT J

**Assignee(s): (std):**

FANDREY ALBERT J

**Assignee(s):**

ALBERT J FANDREY

**Inventor(s): (std):**

FANDREY ALBERT J

**Inventor(s):**

ALBERT J FANDREY

**45) Family number: 26593862 (US993120A)**

© PatBase

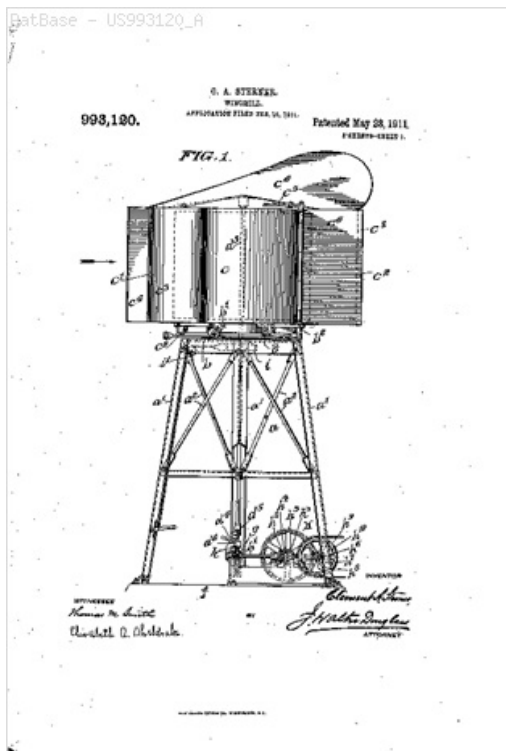
**Title:** WINDMILL.

**Classifications:**

**International (IPC 1-7):** F03D3/04

**CPC:** F03D3/00 Y02E10/74 F03D3/0472

**US:** 415/123 415/149.1 415/4.2 415/4.4



**Family:**



Publication number	Publication date	Application number	Application date
US993120 A	19110523	US19110608868	19110216

**Priority:**

US19110608868 19110216

**Probable Assignee:** STERNER CLEMENT A  
**Assignee(s):** (std): STERNER CLEMENT A  
**Assignee(s):** CLEMENT A STERNER  
**Inventor(s):** (std): STERNER CLEMENT A  
**Inventor(s):** CLEMENT A STERNER

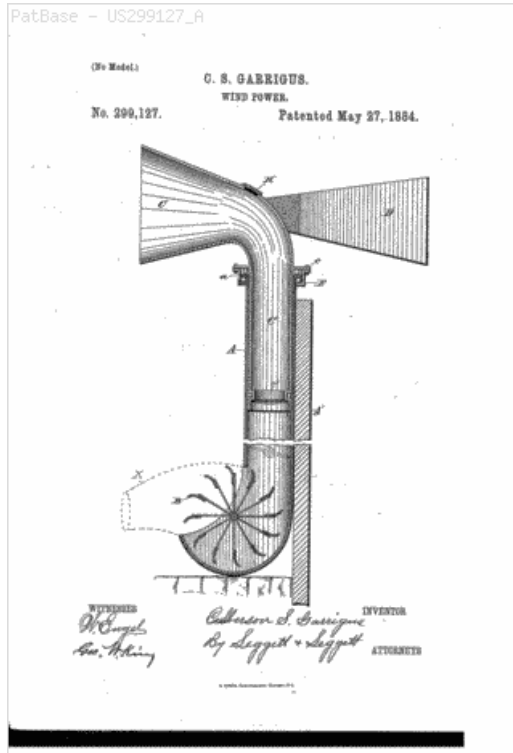
**46) Family number: 26845302 (US299127A)**

© PatBase

**Title:** ASSIGMFFI OF ONE-HALF TO

**Classifications:**

**CPC:** F03D3/00 F03D1/04 F03D3/0463 Y02E10/74  
**US:** 415/145 415/151 415/2.1



**Family:**

Publication number	Publication date	Application number	Application date
US299127 A	18840527		00000000

**Inventor(s):** S GAEIIGUS

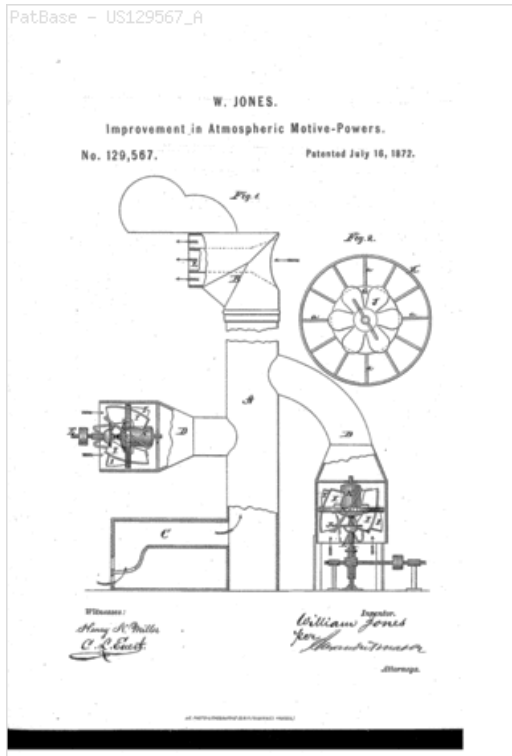
**47) Family number: 27574128 (US129567A)**

© PatBase

**Title:** IMPROVEMENT IN ATMOSPHERIC MOTIVE POWERS

**Classifications:**

**International (IPC 8-9):** F03D1/04 (Advanced/Invention); F03D1/00 (Core/Invention)  
**CPC:** Y10S415/909 F05B2240/131 F03D9/35 F03D1/04 Y02E10/728  
**European:** F03D1/04 R05B240/131 Y02E10/72  
**US:** 236/45 415/2.1 415/4.5 415/909 454/22 60/407



**Family:**

Publication number	Publication date	Application number	Application date
US129567 A	18720716		00000000

**Inventor(s):** WILLIAM JONES