(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 August 2017 (31.08.2017)

WIPO | PCT

(10) International Publication Number
WO 2017/146656 A1

(51) International Patent Classification:
F03B 13/06 (2006.01)

(21) International Application Number:
PCT/TH2016/000047

(22) International Filing Date:
27 May 2016 (27.05.2016)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
1601001046 26 February 2016 (26.02.2016) TH

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i))*

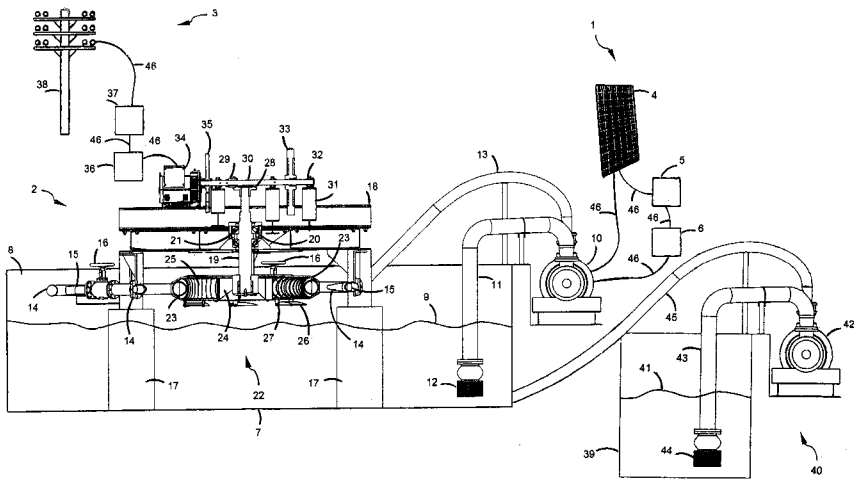
— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*

(54) **Title**: PUMP HYDROELECTRIC

Fig. 1



(57) **Abstract**: A pump hydroelectric comprises a solar panel(1) that converts energy from light to electricity and transmits part of it to an in-out water pump(10) for suctioning circulating water(9) from an inside storage(7) to an injector nozzle(14) to inject water to an impeller(25) located between an impeller base(24) at the top of the water level inside storage. Another part of the impeller base, there contains of the lower part of a rolling bar(19) attached for rolling along the force transmitted the impeller base, while the top end is inserted through a top structural base(18). It contains of a driving gear(28) rolling along the rolling of the rolling bar together with a driving gear axle. The driving gear axle is connected to the generator before the generator transmits electricity.

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Detail of the Invention

Title of Invention PUMP HYDROELECTRIC

Technical Field

Engineering related to pump hydroelectric.

Background of Arts

Refer to Thai Petit Patent number 5186 (Petit Patent Application number 0703000670) that shows one kind of generator using turbine in generating electricity.

Refer to Thai Petit Patent number 5185 (Petit Patent Application number 0703000671) that shows one kind of generator using turbine in generating electricity as the same.

Refer to Thai Petit Patent number 6455 (Petit Patent Application number 1103000301) that shows one kind of generator using turbine attached at the end of tube with running water that flows into storage for turning turbine to spin for generating electricity. The above electric generating is processed by turbine equipped inside water tube or at the end of tube with running water.

Refer to Thai Petit Patent number 8176 (Petit Patent Application number 1203001425) that shows one kind of generator using water pressure circulating inside bowl for using whirlpool to drive side turbine to spin along while the axle of the turbine is connected with power generator. The electricity from power generator is transmitted to outside devices. This method could produce the energy at low level as the whirlpool is not consistently and make the electricity output is not that high.

Characteristic and Purpose of this Invention

Pump hydroelectric composes of solar panel that converts energy from light to electricity and transmits part of it to in-out water pump for suctioning

circulating water from inside storage to injector nozzle to inject water to impeller located between impeller base at the top of water level inside storage. Another part of impeller base, there contains of lower part of rolling bar attached for rolling along the force transmitted impeller base, while the top end is inserted through top structural base. It contains of driving gear rolling along the rolling of rolling bar together with driving gear axle. Driving gear axle is connected to generator before the generator transmits electricity to connecting outside structure.

The purpose of this invention is to have pump hydroelectric that generates electricity for transmitting to outside power buyer.

Brief Description of Drawing

Figure 1 shows pump hydroelectric according to this invention.

Disclosure of Invention

According to figure 1, it shows pump hydroelectric of this invention composing of solar panel 1 for receiving solar light to convert to electricity and transmit to pump hydroelectric unit 2 to generate electricity continuously and transmit to electricity to network connector 3, which

Solar panel 1 composes of solar cell 4 which is photoelectric cell to convert at least one panel to convert solar light into electricity and transmit electricity to pump hydroelectric unit 2 directly by connecting conductor 46 or transmit electricity to solar electricity controller unit 5 by connecting conductor 46, which

Solar electricity controller unit 5 is electric device or connecting or sending command that connected or sending through about controlling the transmitting of electricity to pump hydroelectric unit 2 directly by connecting conductor 46. It could connect or send command or control the electricity to power supply unit 6, e.g., battery, for instance, by connecting conductor 46 for transmitting electricity to pump hydroelectric unit 2 or connecting or sending

command or controlling the electricity by discharging electricity from power supply unit 6 to pump hydroelectricity unit 2 by connecting conductor 46, which

Pump hydroelectric unit 2 composes of water storage structure 7 which contains inside container 8 for containing circulating water 9 in the required level, which

At the side of water storage structure 7, or part of water storage structure 7, there is water in-out pump 10 installed, operating by electricity transmitted from solar panel 4 directly, or receiving electricity from power supply unit 6. The water in-out pump 10 operates for suctioning circulating water 9 from inside container 8 of water storage structure 7 through water flow entrance tube 11 at least one tube or suctioning through water filter 12 before the suctioning water is flowing to water out exit tube 13 at least one tube at the exit of the unit, which

Water out exit tube 13 is tube or networking tube that connected together and making hollow inside of tube connected. Tube is to connect with entrance and exit of water in-out pump 10. Another part of tube is supported for equipped with injector nozzle 14 at least one nozzle or connected with injector connecting tube 15 for injecting water to the desire position, or

Part of water out exit tube 13 or part of injector nozzle 14 or part of injector connecting tube 15, it contains of water valve 16 at least one valve for controlling water pressure while water flowing through or flowing out of injector nozzle 14, and

Below or side of water storage structure 7, there is rolling support platform 17 installing, as base or vertical structure that connected at the top for supporting the connection with top rolling support platform 18, which

Top rolling support platform 18 is support platform or vertical structure that connected with the top of rolling support platform 17 for support the insertion of driving bar 19, which

Driving bar 19 is rolling bar that inserted through top rolling support platform 18 directly or inserted through insertion support platform 20, e.g. insertion support structure, for instance, for the lower end of driving bar inserted

into inside container 8 of water storage structure 7 and top end of driving bar 19 is at the top of top rolling support platform 18, which

Outside of driving bar 19 that inserted through top rolling support platform 18 contains with outside bearing 21 which is attached with top rolling support platform 18 or attached with insertion support platform 20 for supporting the rolling of driving bar 19 easier, and

Lower part of driving bar 19 is attached with water rolling support unit 22 that placed at the higher level than circulating water 9 which is stored in water storage structure 7, which

Water rolling support unit 22 composes of impeller platform 23 which is plate or horizontal structure placed in distance at least two plate to form hollow between support base 24 for attaching with lower part of driving bar 19 directly or by holding supporter, e.g., holding and connecting frame, for instance, and supported with attaching with top side edge and bottom side edge of water holding impeller 25 placed in distance at least two plates, which

Water holding impeller 25 is flat as a whole or curved or partial curved, for inserting in the hollow between support base 24. It brings top side edge and bottom side edge attached to impeller platform 23 for support the water pressure sending through injector nozzle 14 driving water holding impeller 25 to roll along and makes driving bar 19 rolling along water holding impeller 25, and

Lower part of impeller platform 23 contains of lower lifting plate 26 at least one plate. The plate is attached directly or attached by plate holding supporter 27 for support the rolling and creating the stability while water rolling support unit 22 drives along the water pressure that sending through injector nozzle 14, and

At the top of the driving bar 19, there contains of driving gear 28 which is attached gear with side groove or top groove at least one gear attached for driving with driven gear 29 that is gear driven of which its side edge or bottom edge connecting with gear holding bar 30, which

Gear holding bar 30 is lengthy bar of which its part is for holding with driven gear 29, and another part attached with top rolling support platform 18 directly or through driven bar platform 31. The platform is support base or vertical structure placed in distance at least two bases attached with top rolling support platform 18 in the way that gear holding bar 30 could roll along driving gear 28, or

Outside of gear holding bar 30 contains of side bearing 32 for supporting the movement of gear holding bar 30. In the meantime, gear holding bar 30 attaches with part of top rolling support platform 18 directly or through driven bar platform 31, and

Beside of gear holding bar 30, there contains of moving support wheel 33 at one side, for supporting and creating stability in the moving of gear holding bar 30, and

Side of gear holding bar 30 connects with generator axle 34 directly or through supporting unit or side reduction unit 35 for driving generator axle 34 to generate electricity to connect and transmit to electricity converter unit 36 of connecting to electricity to network connector 3, which

Electricity to network connector 3 composes of electricity converter unit 36 which is electric transformer to transform electricity to be higher or lower or transform direct current to alternating current or transform alternating current to direct current. This is to be done with electricity transmitted from generator 34 of pump hydroelectric unit 2 with connecting conductor 46 to transform electricity to required electricity before transmitting to network electricity controller 37 by connecting conductor 46, which

Network electricity controller 37 is electric equipment or connecting or receiving commands or sending commands or controlling the operation of electricity transmitted from electricity converter unit 36 to transmit the electricity to outside connecting network 38 by connecting conductor 46, and

Circulating water 9 contained in water storage structure 7 of pump hydroelectric unit 2 is able to be flowed by storage water from outside reserved water storage 39 of support reserved water unit 40, which

Support reserved water unit 40 composes of outside reserved water storage 39 that is water container structure or natural water resources with standby reserved water 41 stored in. The reserved water may be filled in and flowed with circulating water 9 contained in water storage structure 7 in the required level through flowing tube directly, or

Beside of outside reserved water storage 39 or part of outside reserved water storage 39, it is installed with support water in-out pump 42. The support pump is able to operate by electricity transmitted from outside for suctioning standby reserved water 41 from outside reserved water storage 39 into the channel of support water in-out pump 42 by support water tube 43 at least one tube directly or through support water filter 44. Before reserved water is brought in, it is to be flowed out to support water exit tube 45 at least one tube, through exit of support water in-out pump 42, mixing in with circulating water 9 contained in water storage structure 7 to be in the required level.

From the characteristics of pump hydroelectric of this invention, axle of generator 34 is able to operate continuously both days and nights from power transmitted from the rolling of driving bar 19 that is operated by water holding impeller 25 for generator 34 to generate electricity and transmit to network connector 3, and

Axle of generator 34 is able to connect directly to be transmitted driving power directly from driving bar 19 or through its connector to enhance driving power, and eliminate the loss of power from driving of driving bar 19 to axle of generator 34.

Best Mode for Carrying out the Invention

As the same as described in Complete Disclosure of this Invention section

Claims

1. Pump hydroelectric composes of solar panel (1). The panel includes solar cell (4) which is photoelectric cell to convert at least one panel to convert solar light into electricity and transmit electricity to pump hydroelectric unit (2) directly by connecting conductor (46) or transmit electricity to solar electricity controller unit (5) by connecting conductor (46), which

Solar electricity controller unit (5) is electric device or connecting or sending command that connected or sending through about controlling the transmitting of electricity to pump hydroelectric unit (2) directly by connecting conductor (46). It could connect or send command or control the electricity to power supply unit (6), e.g., battery, for instance, by connecting conductor (46) for transmitting electricity to pump hydroelectric unit (2) or connecting or sending command or controlling the electricity by discharging electricity from power supply unit (6) to pump hydroelectricity unit (2) by connecting conductor (46) to stabilize electricity continuously transmitting to electricity to network connector (3), which

Electricity to network connector (3) composes of electricity converter unit (36) which is electric transformer to transform electricity to be higher or lower or transform direct current to alternating current or transform alternating current to direct current. This is to be done with electricity transmitted from pump hydroelectric unit (2) with connecting conductor (46) to transform electricity to required electricity before transmitting to network electricity controller (37) by connecting conductor (46), which

Network electricity controller (37) is electric equipment or connecting or receiving commands or sending commands or controlling the operation of electricity transmitted from electricity converter unit (36) to transmit the electricity to outside connecting network (38) by connecting conductor (46)

Its special characteristic is

Pump hydroelectric unit (2) composes of water storage structure (7) which contains inside container (8) for containing circulating water (9) in the required

level, which the side of water storage structure (7), or part of water storage structure (7), there is water in-out pump (10) installed, operating by electricity transmitted from solar panel (4) directly, or receiving electricity from power supply unit (6) for suctioning circulating water (9) from inside container (8) through water flow entrance tube (11) at least one tube or suctioning through water filter (12) before the suctioning water is flowing to water out by injector nozzle (14) at least one nozzle or connected with injector connecting tube (15) for injecting water to the desire position with exit tube (13) at least one tube, and

Below or side of water storage structure (7), there is rolling support platform (17) installing, as base or vertical structure that connected at the top for supporting the connection with top rolling support platform (18) for support the insertion of driving bar (19), which

Driving bar (19) is rolling bar that inserted through top rolling support platform (18) directly or inserted through insertion support platform (20) for letting top of driving bar is on top rolling support platform (18) and letting the lower end of driving bar inserted into inside container (8) of water storage structure (7) and attached with water rolling support unit (22) which is placed at higher level of circulating water (9), which

Water rolling support unit (22) composes of impeller platform (23) which is plate or horizontal structure placed in distance at least two plate to form hollow between support base (24) for attaching with lower part of driving bar (19) directly or by holding supporter and supported with attaching with top side edge and bottom side edge of water holding impeller (25) placed in distance at least two plates, for support the water pressure sending through injector nozzle (14) driving water holding impeller (25) to roll along, and

At the top of the driving bar (19), there contains of driving gear (28) which is attached gear with side groove or top groove at least one gear attached for driving with driven gear (29) that is gear driven of which its side edge or bottom edge connecting with gear holding bar (30), which

Gear holding bar (30) is lengthy bar of which its part is for holding with driven gear (29), and another part attached with top rolling support platform (18) directly or through driven bar platform (31). The platform is support base or vertical structure placed in distance at least two bases attached with top rolling support platform (18) in the way that gear holding bar (30) could roll along driving gear (28). Outside of gear holding bar (30) contains of side bearing (32) for supporting the movement of gear holding bar (30). In the meantime, gear holding bar (30) attaches with part of top rolling support platform (18) directly or through driven bar platform (31), and

Side of gear holding bar (30) connects with generator axle (34) directly or through supporting unit or side reduction unit (35) for driving generator axle (34) to generate electricity to connect and transmit to electricity converter unit (36) of connecting to electricity to network connector (3).

2. Pump hydroelectric according to claim1, part of water out exit tube (13) or part of injector nozzle (14) or part of injector connecting tube (15), it contains of water valve (16) at least one valve for controlling water pressure while water flowing through or flowing out of injector nozzle (14).

3. Pump hydroelectric according to claim1, outside of driving bar (19) that inserted through top rolling support platform (18) contains with outside bearing (21) which is attached with top rolling support platform (18) or attached with insertion support platform (20) for supporting the rolling of driving bar (19) easier.

4. Pump hydroelectric according to claim1, water holding impeller (25) is flat as a whole or curved or partial curved, for inserting in the hollow between support base (24). It brings top side edge and bottom side edge attached to impeller platform (23).

5. Pump hydroelectric according to claim1, lower part of impeller platform (23) contains of lower lifting plate (26) at least one plate. The plate is attached directly or attached by plate holding supporter (27) for support the rolling

and creating the stability while water rolling support unit (22) drives along the water pressure that sending through injector nozzle (14).

6. Pump hydroelectric according to claim1, beside of gear holding bar (30), there contains of moving support wheel (33) at one side, for supporting and creating stability in the moving of gear holding bar (30), and

7. Pump hydroelectric according to claim1, circulating water (9) contained in water storage structure (7) of pump hydroelectric unit 2 is able to be flowed by storage water from outside reserved water storage (39) of support reserved water unit (40), to be filled in and flowed with circulating water (9) contained in water storage structure (7) in the required level through flowing tube directly, or

8. Pump hydroelectric according to claim7, beside of outside reserved water storage (39) or part of outside reserved water storage (39), it is installed with support water in-out pump (42). The support pump is able to operate by electricity transmitted from outside for suctioning standby reserved water (41) from outside reserved water storage (39) to inside of water storage structure (7) by support water tube (43) at least one tube directly or through support water filter (44).

9. Pump hydroelectric according to claimer 1, axle of generator (34) is able to connect directly to be transmitted driving power directly from driving bar (19) or through its connector to enhance driving power, and eliminate the loss of power from driving of driving bar (19) to axle of generator (34).

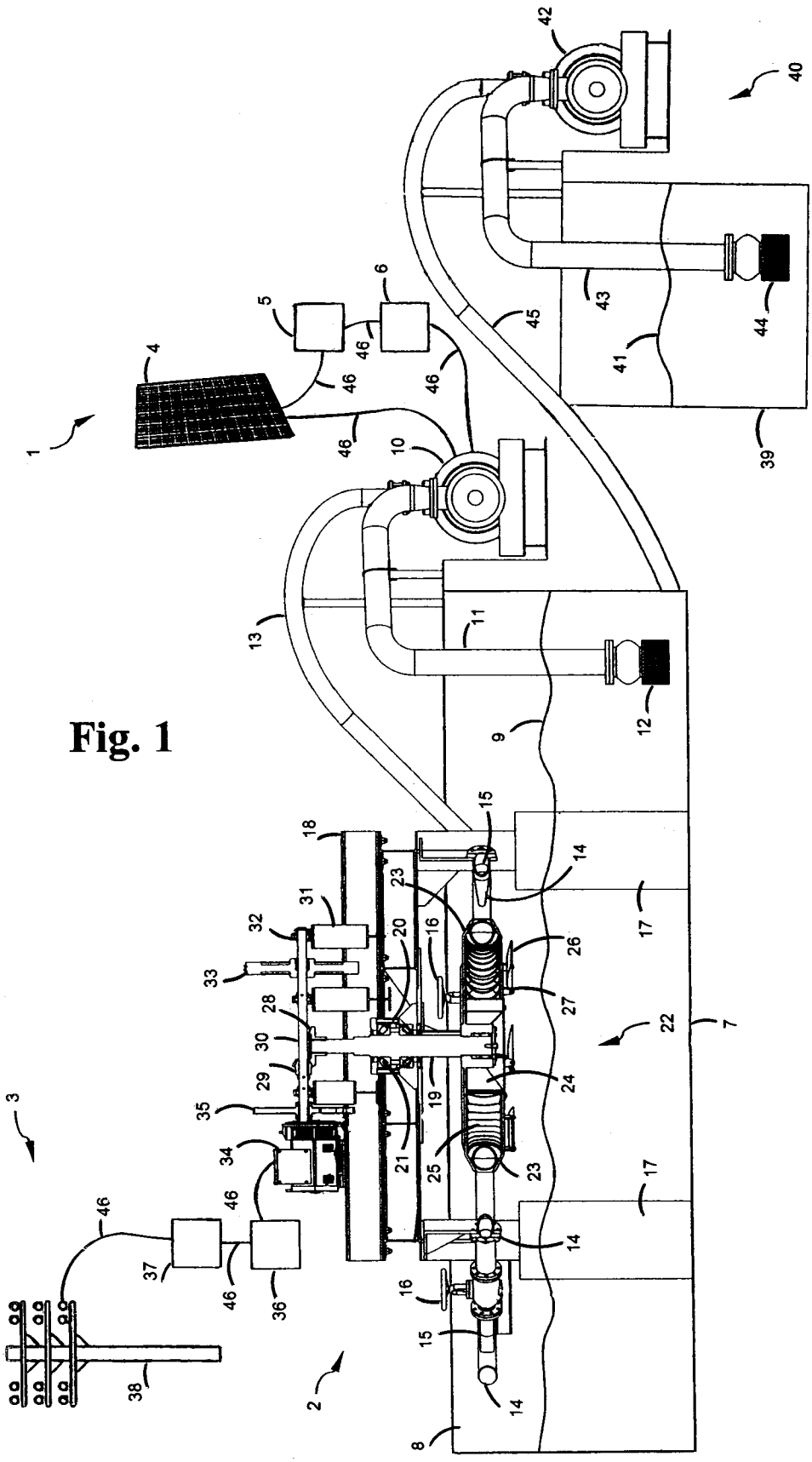
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Fig. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/TH2016/000047

A. CLASSIFICATION OF SUBJECT MATTER

F03B 13/06(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F03B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS,CNTXT,DWPI,SIPOABS,CNKI; pump, hydroelectric, water, energy, power, bar, shaft, gear, impeller, turbine, tube, cable, driving, solar, panel

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2516612 A (DAVISON HUGH PETER) 04 February 2015 (2015-02-04) pages1-3, figures1-2	1-9
A	CN 201013519 Y (HUA ZOU) 30 January 2008 (2008-01-30) the whole document	1-9
A	CN 200975310 Y (LIU YUNLONG) 14 November 2007 (2007-11-14) the whole document	1-9
A	US 2007189111 A1 (GARZA ROBERTO M) 16 August 2007 (2007-08-16) the whole document	1-9
A	US 7564144 B1 (SRYBNIK SIMON ET AL.) 21 July 2009 (2009-07-21) the whole document	1-9

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
18 November 2016	**01 December 2016**

Name and mailing address of the ISA/CN	Authorized officer
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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/TH2016/000047

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
GB	2516612	A	04 February 2015	GB	201309203	D0	03 July 2013
				GB	201306931	D0	29 May 2013
CN	201013519	Y	30 January 2008		None		
CN	200975310	Y	14 November 2007		None		
US	2007189111	A1	16 August 2007		None		
US	7564144	B1	21 July 2009	WO	2009075827	A2	18 June 2009
				WO	2009075827	A3	21 July 2016