

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202231031891 A

(19) INDIA

(22) Date of filing of Application :03/06/2022

(43) Publication Date : 08/07/2022

(54) Title of the invention : A SELF ADJUSTABLE FLAP BLADE HYDROKINETIC TURBINE

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|-----------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (51) International classification             | :F03B0017060000, F03D0003060000, F03D0003000000, F03B0013260000, F03B0003120000 | (71)Name of Applicant :<br><b>1)INDIAN INSTITUTE OF TECHNOLOGY (INDIAN SCHOOL OF MINES), DHANBAD</b><br>Address of Applicant :Dhanbad -826004, Jharkhand, India<br>Dhanbad -----<br><b>Name of Applicant : NA</b><br><b>Address of Applicant : NA</b>       |
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| (61) Patent of Addition to Application Number | :NA                                                                             |                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                             |
| (62) Divisional to Application Number         | :NA                                                                             |                                                                                                                                                                                                                                                             |
| Filing Date                                   | :NA                                                                             |                                                                                                                                                                                                                                                             |

(57) Abstract :

The present invention relates to a self-adjustable flap blade hydro kinetic turbine (100) for hydro energy generation operated at low head resources. The turbine (100) comprises a pair of semi-circular blades (2, 2') split into two halves each to form two quarter-sized flap blades (2a-2d), an S-shape core blade (1), a pair of endplates (4, 5) and a pair of centre pins (3). The flap blade (2, 2') is hinged with the S-shape core blade (1) and can flap within an angle of 0°- 45°. The flap is limited by providing stoppers (6, 7) attached at the concave and convex sides of the blades (2, 2'). The flap blade's opening and closing motion is attained due to the drag force applied by the fluid flow. The rotational motion along the vertical axis of the turbine (100) is initiated when the free stream is exerted to the turbine's advancing blade (2a, 2b), the presence of returning blade (2c, 2d) restricts the motion. However, the hindrances created by the returning blade (2c, 2d) is reduced with the blades (2, 2') flapping by diverting the inflow, resulting enhancement of the rotation of the turbine (100).

No. of Pages : 15 No. of Claims : 5