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(54) Title of the invention : SYNCHROCYCLE: A HAND-TO-FOOT COUPLED REHABILITATION AND FITNESS ERGOMETER USING SYNCHRONIZED ROTATIONAL LINKAGE SYSTEM

(51) International classification	:A61H 1/02, A63B 23/035, A63B 22/06, A63B 23/04, A63B 21/005	(71) <b>Name of Applicant :</b> <b>1)Brainware University, Kolkata</b> Address of Applicant :398, Ramkrishnapur Rd, Near Jagadighata Market, Barasat, Kolkata, West Bengal 700125 West Bengal India (72) <b>Name of Inventor :</b> <b>1)Ms. Aishwarya Rai</b> <b>2)Mr. Kundan Das Ukil</b> <b>3)Mr. Shaswat Kumar Chandan</b>
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(57) Abstract :

The present invention relates to a hand-to-foot coupled rehabilitation ergometer designed to provide synchronized upper and lower limb movement through a mechanically linked rotational transmission system. The device incorporates a hand-crank assembly, a foot-pedal assembly, an adjustable seating unit, and a central flywheel with controllable resistance, enabling passive, active, or assisted exercise modes suitable for diverse therapeutic requirements. By allowing rotational torque generated by the upper limbs to drive the lower limb pedals, the invention facilitates neuromuscular coordination, motor relearning, and lower-limb mobilization in patients with partial or complete leg weakness. The non-electrical, mechanically efficient design ensures portability, affordability, and usability across physiotherapy centres, sports rehabilitation units, geriatric wellness programs, and home-based therapy environments. Accompanied Drawing [FIGS. 1-2]

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