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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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