

ABSTRACT

WAVE ENERGY CONVERSION SYSTEM

A wave energy conversion system comprising: a frame attachable to an offshore structure and having a number of upright linear guides; a buoy slidably engaging the linear guides and configured to float and rise and fall with wave movements; a rack and pinion arrangement, the rack attached to the buoy to move up and down as the buoy rises and falls, the pinion provided in rotatable engagement with the rack and attached to one of: the frame and the offshore structure, wherein the pinion is rotated in a first direction and a second direction by upward movement and downward movement of the rack respectively; a bi-rotational hydraulic pump driven by rotation of the pinion in both the first and second directions to draw fluid from a fluid tank and to output pressurized fluid to drive a hydraulic motor, wherein the hydraulic motor drives an electrical generator to generate electrical energy.

Fig. 1