United States Patent

Hinckley

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[54] **ENGINE**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 812,656, April 2, 1969, abandoned.

[52] **U.S. Cl.**.....**418/141,** 418/249

[51] **Int. Cl.**.....**F01c 1/00,** F03c 3/00, F04c 17/00

[58] **Field of Search**.....418/249, 250, 251, 141

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[57] **ABSTRACT**

A rotary fluid engine powered by externally pressurized working fluid including a rotor and a plurality of swinging arms positioned to engage with and impart a torque force to the rotor when the arms are driven sequentially inward by the selective admission of charges of externally pressurized working fluid. A first segment on the rotor surface engages the free end of each arm as the arm is driven inwardly and a second segment on the rotor surface operates to return the arm outwardly after the power impulse is completed. Valving and conduit means are provided to control the direction of the working fluid to the arms and exhaust means are provided to exhaust spent working fluid from the engine. In one embodiment, the valving and conduit means are adapted to direct charges of externally pressurized working fluid sequentially against said arms so that the engine operates as a simple engine. In a second embodiment, the valving and conduit means are adapted to direct charges of externally pressurized working fluid first against one of said arms at a high pressure and secondly against another arm at a relatively lower pressure so that said engine operates as a compound engine. In a third embodiment, transfer valve means are provided which permit said engine to be switchable between said simple and compound modes of operation. The rotor surface may include a plurality of said first and second segments so that each arm will transmit a corresponding plurality of power impulses to the rotor for each complete rotor revolution.

8 Claims, 22 Drawing Figures