# N° 27,087 A.D. 1910

*Date of Application, 22nd Nov., 1910*
*Complete Specification Left, 21st June, 1911—Accepted, 17th Aug., 1911*

## PROVISIONAL SPECIFICATION.

### Improvements in Propellers applicable for Aerial Machines.

I, LUDWIG WITTGENSTEIN, of Wilmslow Road, Fallowfield, City of Manchester, Research Engineering Student, do hereby declare the nature of this invention to be as follows:—

This invention relates to propellers for aeroplanes, helicopters, dirigible balloons, or other forms of aerial machines.

It consists essentially of a radially armed motor each arm carrying a combustion chamber, and exhaust nozzle at its extremity and each arm formed as, or fitted with, a propeller blade.

In carrying out the invention the motor is constructed with two or more arms radiating from a central hub. Each arm of the motor is tubular with a combustion chamber at or near the extremity. The arm is provided with a passage for air, and a second passage for gaseous, or vaporised fuel, or an injector by which such fuel is admitted. Each combustion chamber is provided with an exhaust nozzle placed at a right angle or other suitable inclination to the longitudinal axis of the arm. The air and fuel are admitted to the arms of the motor, at or near the hub, which may also be fitted with non-return valves, or with suitable admission or inlet valves by which the admission of air and gas can be controlled and regulated.

Two or more of the arms are formed with a screw blade or propeller so that each of these arms of the motor also act as propeller blades.

Air is admitted at the hub, and is forced along the arm to the combustion chamber and therein compressed by the centrifugal force exerted by the revolving arms. The gaseous or vaporised fuel is ignited within the combustion chamber where the air is expanded and the waste gases and products of combustion issue with considerable force through the exhaust nozzles rotating the apparatus at a high velocity.

Any other form of radial motor may be constructed with screw or propeller blades forming part of or attached to the radial motor arms.

J. OWDEN O'BRIEN,
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Patent Agents.

## COMPLETE SPECIFICATION.

### Improvements in Propellers applicable for Aerial Machines.

I, LUDWIG WITTGENSTEIN, of Palatine Road, West Didsbury, Manchester, County of Lancaster, late of Wilmslow Road, Fallowfield, City of Manchester, Research Engineering Student, do hereby declare the nature of this invention

[*Price 8d.*]