## United States Patent [19]

### Clark

[11] 3,820,719

[45] June 28, 1974

- [54] GAS TURBINE ENGINES
- [75] Inventor: Kenneth William Clark, Bristol, England
- [73] Assignee: Rolls-Royce (1971) Limited, London, England
- [22] Filed: Apr. 30, 1973
- [21] Appl. No.: 355,425

## [30] Foreign Application Priority Data

May 9, 1972 Great Britain ...... 21659/72

- 60/264, 271, 226 R, 226 A

### [56] **References Cited** UNITED STATES PATENTS

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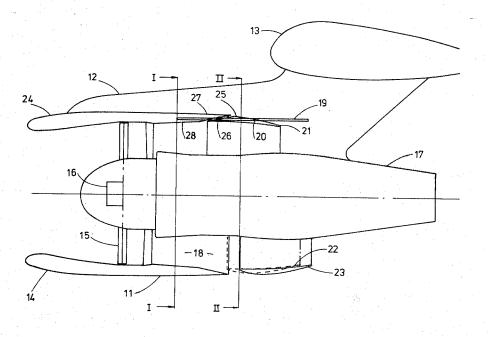
Primary Examiner—M. Henson Wood, Jr. Assistant Examiner—Michael Y. Mar Attorney, Agent, or Firm—Stevens, Davis, Miller & Mosher

[57]

#### ABSTRACT

A fan type gas turbine engine for use in an aircraft, the engine having a fan cowl comprising at least two annular parts, one part being axially separable from the remainder of the fan cowl to provide an annular opening giving additional nozzle area during take-off conditions and being shaped to promote attachment of the extra nozzle flow to its outer surface; and, if the fan is a variable pitch fan, the additional nozzle area can serve as additional intake area for the fan during operation in the reverse pitch mode.

#### 8 Claims, 10 Drawing Figures



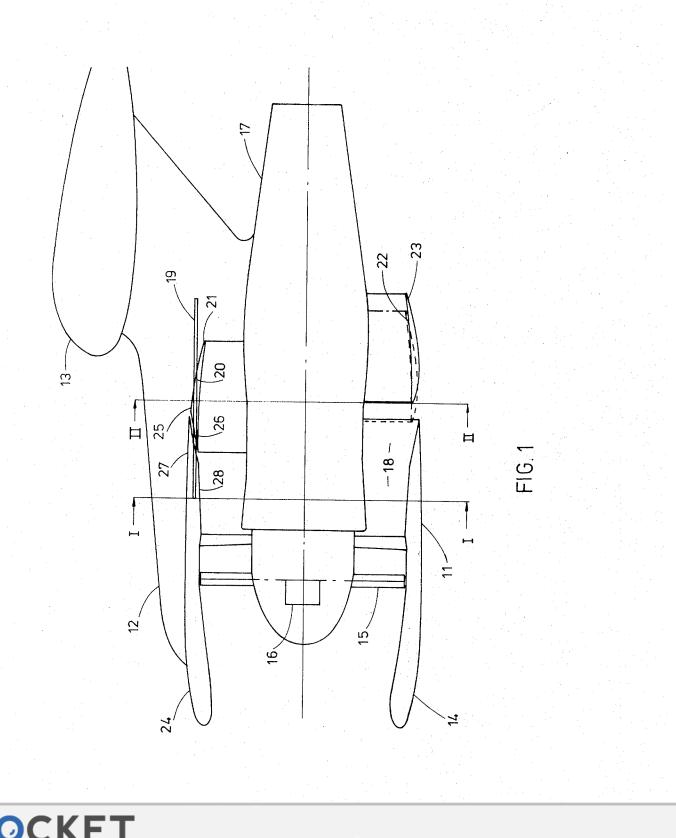
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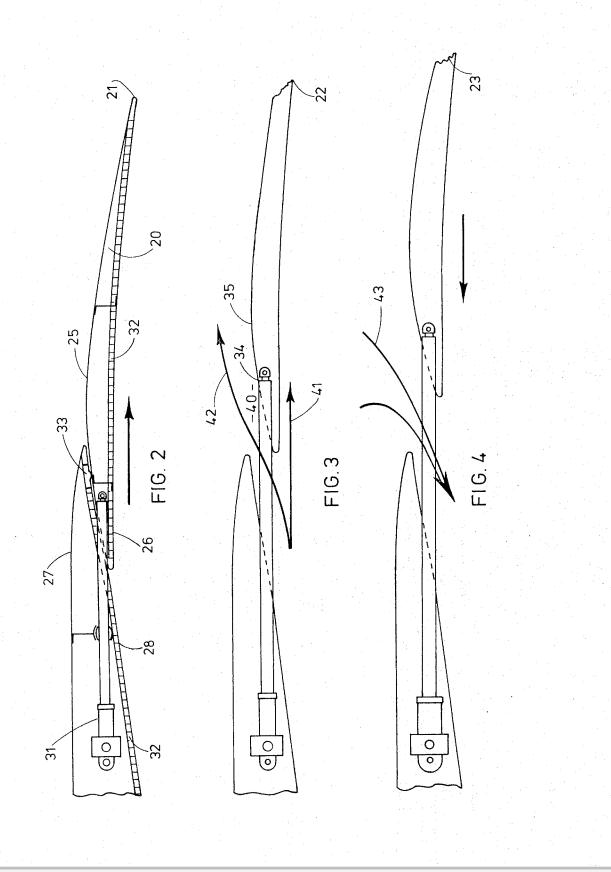
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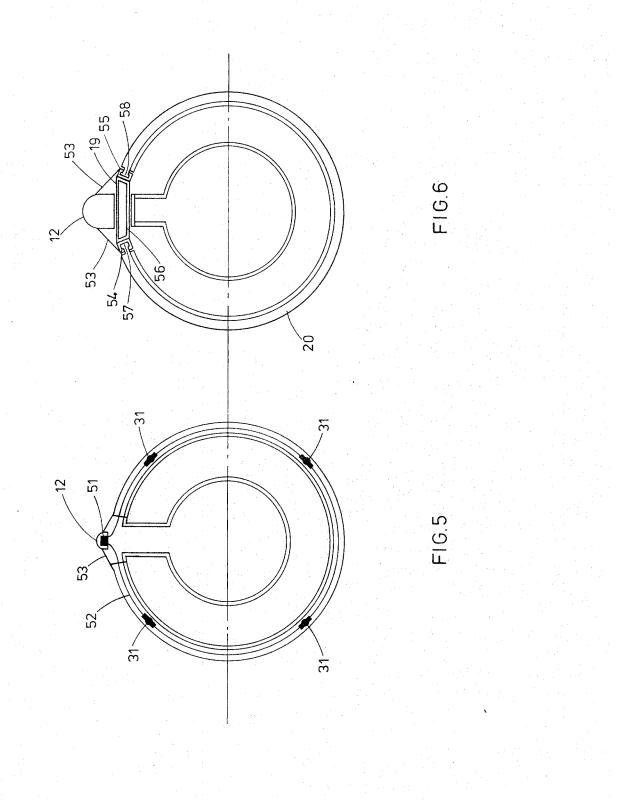
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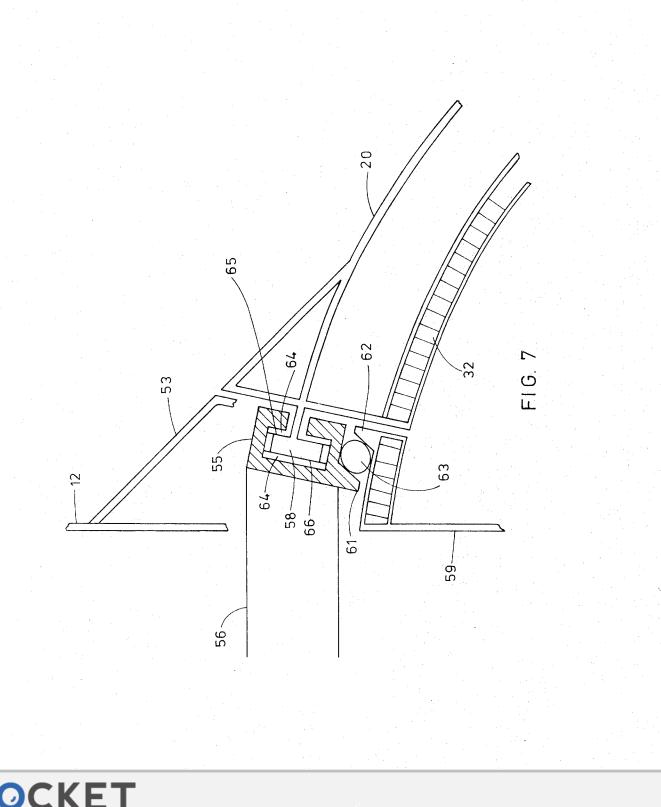
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