

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202331082467 A

(19) INDIA

(22) Date of filing of Application :04/12/2023

(43) Publication Date : 23/02/2024

(54) Title of the invention : ACOUSTIC DRIVEN TWIN JET INJECTOR SYSTEM FOR THE CONTROL OF SPRAYS, THERMOACOUSTIC OSCILLATIONS IN A COMBUSTOR

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(51) International classification	:F23R0003280000, F23M0020000000, F23R0003000000, A61M0005300000, F23R0003140000	
(86) International Application No	:NA	
Filing Date	:NA	
(87) International Publication No	: NA	
(61) Patent of Addition to Application Number	:NA	
Filing Date	:NA	
(62) Divisional to Application Number	:NA	
Filing Date	:NA	

(57) Abstract :

The present invention relates to an acoustic driven twin jet fuel injection system for the control of sprays and thermo-acoustic instabilities in a gas turbine combustor. The Air enters through an inlet (1) of the turbine engine and gets compressed before leading into a combustion chamber (7) through a swirler (4). Inside the chamber (7), fuel from a fuel tank (11) mixes with the compressed air and ignites via spark plug (5), producing an unsteady flame. The present invention utilizes acoustic drivers (10) provided on the twin jet injector system for the efficient atomization of fuel. The acoustic waves of intended frequencies and amplitudes are released from the required acoustic drivers (10) in the opposite phase to the reflected waves arising due to the unsteady flame inside the combustor, through the attached variable waveguides (3) into the combustion chamber (7). The waves from the acoustic drivers pass through the corresponding waveguides and superimpose with the oscillating pressure wave generated due to the combustion and suppress the dominant frequencies of the oscillations ahead of the flame to avoid thermo-acoustic instability.

No. of Pages : 21 No. of Claims : 5