

Title (en)  
COMBUSTION APPARATUS

Publication  
**EP 0493376 A3 19920819 (EN)**

Application  
**EP 92105621 A 19890706**

Priority  
• EP 89112363 A 19890706  
• JP 17042988 A 19880708  
• JP 17043088 A 19880708

Abstract (en)  
[origin: EP0350032A2] A combustion apparatus comprises: a large-diameter sleeve-like element (1) forming an incoming passage (3) through which an air/fuel mixture gas flows in a predetermined direction; at least one small-diameter sleeve-like element (2) disposed in the incoming passage, which small-diameter sleeve-like element forms an outgoing passage (4) through which a combustion gas having been issued from the incoming passage flows in a direction counter to the above predetermined direction; an air/fuel mixing unit (15) for issuing the air/fuel mixture gas under a predetermined pressure to a main incoming port (5) located in an upstream side of the incoming passage; an auxiliary incoming unit (6) for issuing a combustion gas produced by a pilot burner (12) to the upstream side of the incoming passage prior to supplying the air/fuel mixture gas to the incoming passage; and a combustion-gas outlet port (7) for discharging the combustion gas having passed through the outgoing passage, which combustion-gas outlet port communicates with an outlet opening of the outgoing passage.

IPC 1-7  
**F23C 11/00**; **F23C 3/00**; **F23C 7/00**

IPC 8 full level  
**F23C 3/00** (2006.01); **F23C 7/00** (2006.01); **F23C 13/00** (2006.01); **F23C 99/00** (2006.01); **F23D 11/36** (2006.01)

CPC (source: EP)  
**F23C 3/00** (2013.01); **F23C 7/008** (2013.01); **F23C 13/00** (2013.01); **F23C 99/00** (2013.01); **F23D 11/36** (2013.01)

Citation (search report)  
• [A] GB 2027609 A 19800227 - JOHNSON MATTHEY CO LTD  
• [A] US 4126419 A 19781121 - KATABUCHI KEICHI, et al  
• [A] US 4089088 A 19780516 - KONCZALSKI RONALD L  
• [A] PATENT ABSTRACTS OF JAPAN vol. 6, no. 86 (M-131)(964) 25 May 1982 & JP-A-57 023 706 ( HITACHI ) 8 February 1982

Cited by  
EP1031546A1; CZ298649B6; US6517341B1

Designated contracting state (EPC)  
DE FR GB IT

DOCDB simple family (publication)  
**EP 0350032 A2 19900110**; **EP 0350032 A3 19901107**; **EP 0350032 B1 19931013**; DE 68909851 D1 19931118; DE 68909851 T2 19940505; DE 68924539 D1 19951116; DE 68924539 T2 19960418; EP 0493376 A2 19920701; EP 0493376 A3 19920819; EP 0493376 B1 19951011

DOCDB simple family (application)  
**EP 89112363 A 19890706**; DE 68909851 T 19890706; DE 68924539 T 19890706; EP 92105621 A 19890706