

Title (en)  
Spray nozzle for piston cooling of an internal combustion engine

Title (de)  
Spritzdüse für die Kolbenkühlung einer Brennkraftmaschine

Title (fr)  
Gicleur de refroidissement de piston d'un moteur à combustion interne

Publication  
**EP 0825335 B1 20020918 (DE)**

Application  
**EP 97110179 A 19970621**

Priority  
DE 19633167 A 19960817

Abstract (en)  
[origin: EP0825335A1] The system has at least two almost parallel outlet channels (19,20), the spacing (a) of which is less than twice the diameter of the larger channel. The diameter (d) of the outlet channels is between 0.8 mm to 1.5 mm, and approximately 1.2 mm, and the spacing of the channels about 1.5 mm. The diameter of the channels may be the same. On their inlet ends (21,22) the outlet channels are opened out in conical fashion, with a cone angle of about 45 degrees.

IPC 1-7  
**F01P 3/08**; **B05B 1/14**

IPC 8 full level  
**F01M 1/08** (2006.01); **B05B 1/14** (2006.01); **F01P 3/08** (2006.01)

CPC (source: EP KR US)  
**B05B 1/14** (2013.01 - EP KR US); **F01P 3/08** (2013.01 - EP KR US); **F01P 11/0238** (2013.01 - KR)

Cited by  
DE102016219857A1; WO0114699A1; WO2023193885A1; US6672261B1; US6832437B2

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DE FR GB IT

DOCDB simple family (publication)  
**DE 19633167 A1 19980219**; DE 59708245 D1 20021024; EP 0825335 A1 19980225; EP 0825335 B1 20020918; JP H1077833 A 19980324; KR 19980018639 A 19980605; US 5915345 A 19990629

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