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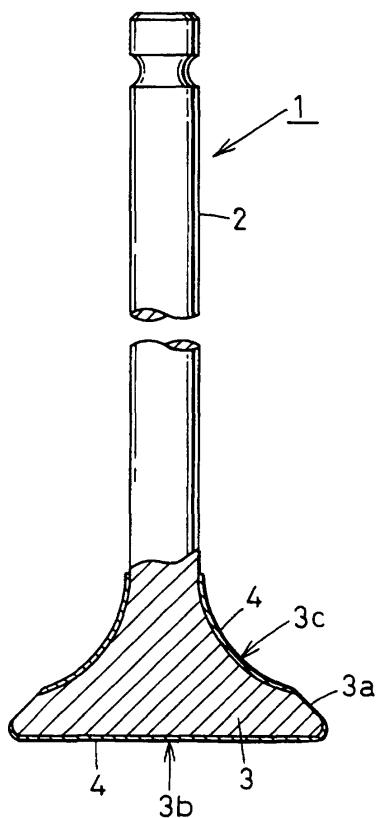
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(54) Poppet valve

(57) A poppet valve that comprises a valve head and a valve stem is used in an internal combustion engine. The valve head is covered with a heat-insulating film except a valve face. The film is made of ceramics. Furthermore, a heat-shielding plate is fixed over a front face of the valve head to form a heat-insulating space between the plate and the front face thereby decreasing operational temperature of the valve.

FIG.1





European Patent Office

EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)		
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Y	* column 1, lines 8,9 * * column 2, lines 52-57 * * column 3, lines 20-33 * * column 3, lines 48-63 * * figure 1 * -----	5,6			
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A	* column 1, lines 2-14 * * page 3, column 1, lines 56-61 * * page 3, column 2, lines 27-33 * * figure 2 * -----	5,6			
Y	US 4 530 322 A (MIZUSHINA MASAAKI ET AL) 23 July 1985 (1985-07-23) * figures 3A,3B * * column 1, paragraph 47-50 * * column 3, lines 1-30 * * column 3, lines 47-55 * * column 3, lines 66-68 * -----	5,6	TECHNICAL FIELDS SEARCHED (Int.Cl.7)		
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A	* page 3, paragraph 1 * * page 4, paragraph 4 - page 5, paragraph 1 * * page 6, paragraphs 2,3 * * figures 1,2 * -----	3			
A	GB 618 607 A (HAROLD ERNEST GRESHAM; MARCUS ALAN WHEELER; WILLIAM THOMAS DAVIES) 24 February 1949 (1949-02-24) * page 2, line 94 - page 3, line 8 * * page 3, lines 59-70 * -----	1			
The present search report has been drawn up for all claims					
Place of search	Date of completion of the search	Examiner			
The Hague	6 October 2003	Paquay, J			
CATEGORY OF CITED DOCUMENTS					
X : particularly relevant if taken alone	T : theory or principle underlying the invention				
Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date				
A : technological background	D : document cited in the application				
O : non-written disclosure	L : document cited for other reasons				
P : intermediate document	& : member of the same patent family, corresponding document				

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 03 00 7678

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-6

A valve with a valve head covered with a heat-resistant and a heat-insulating material

2. claims: 7-16

A valve head that contains a head-shielding plate, made of a heat-resistant and a heat-insulating material

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 03 00 7678

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
 The members are as contained in the European Patent Office EDP file on
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06-10-2003

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