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PNEUMATIC CYLINDER

- (57)

The finding concerns a pneumatic cylinder (1), comprising a jacket (2) consisting of a carbon fiber tube covered internally with a metal layer, two heads (3) which close the ends of said jacket (2) and a piston (4) adapted to slide inside the jacket. Said cylinder also comprises a rod (5) connected to the piston (4), which has a carbon fiber core (6) covered on the outside with a metal layer (7).

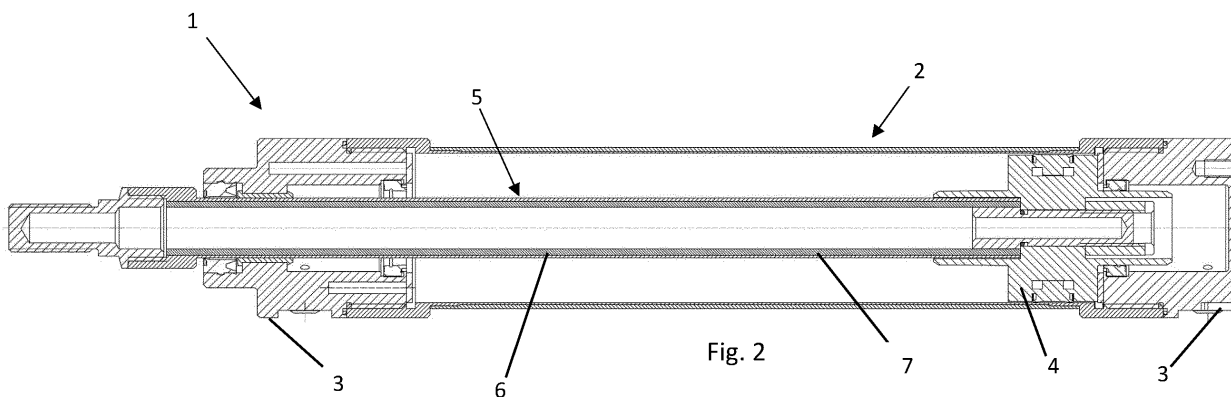


Fig. 2



EUROPEAN SEARCH REPORT

Application Number

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EPO FORM 1503 03.82 (P04C01)

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 10 2004 008523 A1 (LIEBHERR AEROSPACE GMBH [DE]) 8 September 2005 (2005-09-08)	1, 2	INV.
A	* figures 1-3, 10, 11 * -----	4-6	F15B15/14 F15B15/22 B29C63/00 F15B15/10
X	US 7 185 581 B2 (ROBOTICS SA [US]) 6 March 2007 (2007-03-06)	1, 2	
A	* figures 1, 5a * -----	4-6	
X	GB 2 149 855 A (PEUGEOT ACIERS ET OUTILLAGE) 19 June 1985 (1985-06-19)	1, 2	
A	* figures 1, 3 * -----	4-6	
			TECHNICAL FIELDS SEARCHED (IPC)
			F15B B29C
<p>The present search report has been drawn up for all claims</p>			
Place of search		Date of completion of the search	Examiner
Munich		1 December 2023	Bindreiff, Romain
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			



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CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due 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 those claims for which no payment was due.

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:

1, 2, 4-6

☐ The present supplementary 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 (Rule 164 (1) EPC).



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number

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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, 2, 4-6

**Pneumatic cylinder comprising composite material and a
corresponding method of manufacturing**

2. claim: 3

Pneumatic cylinder with damping features

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

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5 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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-12-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 7185581 B2	06-03-2007	US 2006016329 A1 WO 2006014919 A1	26-01-2006 09-02-2006
GB 2149855 A	19-06-1985	DE 8433253 U1 ES 282838 U FR 2554876 A1 GB 2149855 A	21-03-1985 01-02-1986 17-05-1985 19-06-1985