



(11) **EP 4 357 498 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
10.07.2024 Bulletin 2024/28

(51) International Patent Classification (IPC):
D01H 1/115 (2006.01)

(43) Date of publication A2:
24.04.2024 Bulletin 2024/17

(52) Cooperative Patent Classification (CPC):
D01H 1/115

(21) Application number: **23199978.0**

(22) Date of filing: **27.09.2023**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC ME MK MT NL
NO PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA
Designated Validation States:
KH MA MD TN

(71) Applicant: **Murata Machinery, Ltd.**
Kyoto-shi,
Kyoto 601-8326 (JP)

(72) Inventor: **MORITA, Akihiro**
Kyoto, 612-8686 (JP)

(74) Representative: **Zimmermann, Tankred Klaus et al**
Schoppe, Zimmermann, Stöckeler
Zinkler, Schenk & Partner mbB
Patentanwälte
Radtkoferstrasse 2
81373 München (DE)

(30) Priority: **28.09.2022 JP 2022155316**

(54) **HOLLOW GUIDE SHAFT, PNEUMATIC SPINNING DEVICE, SPINNING MACHINE, AND
HOLLOW GUIDE SHAFT SET**

(57) The hollow guide shaft has a shaft portion having a fiber introduction hole into which fibers are introduced and a fiber passage that is continuous with the fiber introduction hole and extends along an axial direction.

Where A is an inner diameter of the fiber passage and B is a diameter of an introduction opening serving as an opening end of the fiber introduction hole, $1.12 \leq B/A \leq 1.3$ is established.

EP 4 357 498 A3



EUROPEAN SEARCH REPORT

Application Number

EP 23 19 9978

5

10

15

20

25

30

35

40

45

50

55

1

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	CN 203 977 003 U (ZHEJIANG HUAFU TOP DYED YARN MELANGE CO LTD) 3 December 2014 (2014-12-03) * claims 1-4; figures 1-3 * -----	1-9	INV. D01H1/115
A	CN 103 305 979 A (UNIV DONGHUA) 18 September 2013 (2013-09-18) * paragraph [0026]; figure 1; example 1 * -----	1-11	
A	CN 102 787 405 B (UNIV SHAOXING) 26 November 2014 (2014-11-26) * paragraph [0035] - paragraph [0037]; figure 3; example 1 * -----	1-11	
A	CN 101 294 319 A (UNIV DONGHUA [CN]) 29 October 2008 (2008-10-29) * paragraph [0036]; claim 1; figure 5 * -----	1-11	
A	US 10 851 478 B2 (SAVIO MACCH TESSILI SPA [IT]) 1 December 2020 (2020-12-01) * figures 1, 5, 8 * -----	1-11	
			TECHNICAL FIELDS SEARCHED (IPC)
			D01H
-The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 21 February 2024	Examiner Todarello, Giovanni
CATEGORY OF CITED DOCUMENTS 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		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	



Application Number

EP 23 19 9978

5

10

15

20

25

30

35

40

45

50

55

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 - 11

☐ 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

EP 23 19 9978

5

10

15

20

25

30

35

40

45

50

55

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: 1-11

A hollow guide shaft having a B/A diameter ratio between 1.12 and 1.3

2. claim: 12

A set of hollow guide shafts

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

EP 23 19 9978

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.

21-02-2024

10	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
	CN 203977003 U	03-12-2014	NONE	

15	CN 103305979 A	18-09-2013	NONE	

	CN 102787405 B	26-11-2014	NONE	

	CN 101294319 A	29-10-2008	NONE	

20	US 10851478 B2	01-12-2020	CN 107366050 A	21-11-2017
			CN 206751993 U	15-12-2017
			EP 3243942 A1	15-11-2017
			US 2017314167 A1	02-11-2017

25				
30				
35				
40				
45				
50				
55				

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82