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(54) **APPARATUS FOR MANUFACTURING PAPER REINFORCING MATERIAL FOR CIGARETTE FILTERS AND CIGARETTE FILTER INTO WHICH PAPER REINFORCING MATERIAL IS INSERTED**

(57) To improve durability of cigarette filters, the present invention provides an apparatus for manufacturing a paper reinforcing material for cigarette filters, the apparatus including: a paper tube forming part (10) configured to overlap wrapping paper in multiple layers and form a cylindrical paper tube that is hollow; a jig frame (20) including a guider part (21) provided for the cylindrical paper tube to be inserted therein in a longitudinal direction and a base support part (23) provided to surround the guider (21) part and having a plurality of through-holes formed at predetermined intervals in outer peripheral surfaces in a circumferential direction thereof; a plurality of pressure forming parts (30) each disposed to pass through one of the through-holes in a radial direction and disposed to be spaced apart in the circumferential direction to press and compress an outer circumferential part of the cylindrical paper tube and form the cylindrical paper tube into a reinforcing material having a plurality of support wing parts formed thereon; and a preform jig (40) provided at an inlet side of the jig frame and configured to provide a pressing force to form guideline grooves in the outer circumferential part of the cylindrical paper tube. Further, the invention provides a cigarette filter (200).

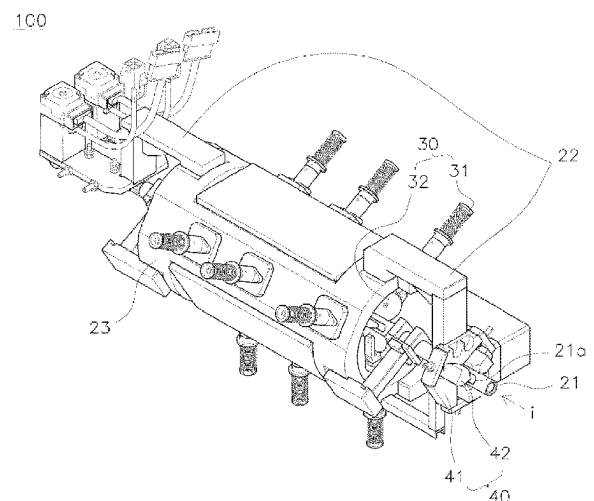


FIG. 2



EUROPEAN SEARCH REPORT

Application Number

EP 24 18 1502

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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A	US 3 805 682 A (DAVIDSON J ET AL) 23 April 1974 (1974-04-23) * column 2, line 3 - column 6, line 4; figures 1-5 *	1-4	
A	US 2014/202479 A1 (NICHOLLS JANE [GB] ET AL) 24 July 2014 (2014-07-24) * paragraphs [0051], [0154]; figures 4A-5 *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC)
			A24D B31F A24C B31D B31C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		11 November 2024	Espla, Alexandre
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			



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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 - 4

☐ 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: 1-4

Apparatus for manufacturing a paper reinforcing material suitable for cigarette filters, wherein the paper reinforcing material is a tube with a plurality of circumferential support wing parts, and wherein the manufacturing apparatus is further specified (in particular with a paper tube forming part, a jig frame comprising a guider part and a base support part, a plurality of pressure forming parts and a preform jig)

2. claims: 5, 6

Cigarette filter comprising a paper reinforcing material, wherein the paper reinforcing material is a tube with a plurality of circumferential support wing parts, and wherein the cigarette filter further comprises, inter alia, a filter rod part made of paper tow formed from a plurality of branch parts

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

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