



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 1 045 047 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
18.10.2000 Bulletin 2000/42

(51) Int. Cl.⁷: **D01G 15/98**

(21) Application number: **00107736.1**

(22) Date of filing: **11.04.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **15.04.1999 IT TO990299**

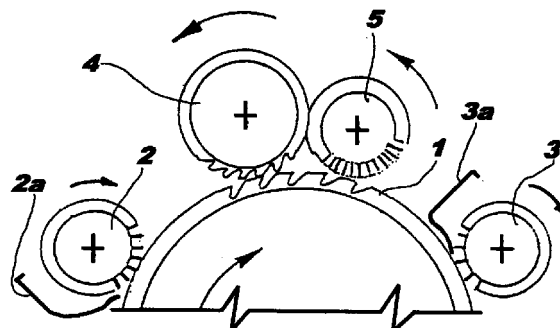
(71) Applicant:
**F.O.R. ING. GRAZIANO S.p.A.
I-13051 Biella (Vercelli) (IT)**

(72) Inventor: **Bacchio, Giovanni
13053 Mongrando (Biella) (IT)**

(74) Representative:
**Jacobacci, Filippo et al
c/o JACOBACCI & PERANI S.p.A.
Corso Regio Parco, 27
10152 Torino (IT)**

(54) **A device for expelling the vegetable impurities in a wool card**

(57) A device for expelling the vegetable impurities in a wool card comprises at least one Morel cylinder (1) with which at least one pair of burr-beaters (2, 3) cooperates. Interposed between the two burr-beaters (2, 3) is a pair of rolls (4, 5) of which the first is a working roll (4) rotating at a speed slower than that of the Morel cylinder (1) and the second is a brush-like roll (5) rotating at a speed faster than that of the working roll (4) but slower than the that of Morel cylinder (1). The brush-like roll (5) discharges the fibres onto the Morel cylinder (1) in a manner such that they are turned over and arranged parallel with one another.



EP 1 045 047 A1

Description

[0001] The present invention relates to a device for expelling the vegetable impurities in a wool card of the type comprising at least one Morel cylinder with which at least one pair of burr-beaters cooperates.

[0002] It is known from patent application FR-A-2,232,626 to use, on a Morel cylinder, two burr-beaters between which an inverted carding unit constituted by a worker and by a stripper is interposed.

[0003] The function of this inverted carding unit is to perform a carding operation on the wool transported by the Morel cylinder and to turn the tufts of wool over.

[0004] However, this solution is not satisfactory, in the first place, because it turns the fibres over only partially. Moreover, a large amount of turbulence is produced in the region between the points of contact of the worker with the Morel cylinder, of the worker with the stripper, and of the stripper with the Morel cylinder, owing to the draughts caused by the rotation of said cylinders so that, in the tufts of fibres which emerge from this carding unit as a result of the action of the stripper, not all of the fibres are correctly oriented parallel to the direction of advance and the fibres may also have agglomerations of wool.

[0005] As a result of the action of the subsequent burr-beater, this may lead to breakage of the incorrectly oriented fibres and to expulsion or damage of any agglomerations of wool.

[0006] It is known from patent application EP-A-0 768 397 to use, on a Morel cylinder, two burr-beaters, between which is interposed a pair of rolls of which the first is a roll having a brush-like covering and rotating at a speed faster than that of the Morel cylinder and the second is a turning roll having a rigid covering with triangular points oriented in its own direction of rotation, rotating at a speed between that of the brush-like roll and that of the Morel cylinder, and discharging the brush-like cylinder completely by densification.

[0007] The solution which forms the subject of this application achieves - in comparison with the solution known from FR-A-2,232,626 - complete rather than partial turning-over of the fibres. However, this solution is also unable to output all of the fibres with the correct parallel orientation since the turning roll cannot render parallel those fibres which undergo a random orientation as a result of the above-mentioned turbulence.

[0008] In order to prevent the above-mentioned disadvantages of the prior art, the subject of the present invention is a device for expelling the vegetable impurities in a card of the type specified above having the characteristics which form the subject of Claim 1.

[0009] The invention will now be described with reference to the appended drawing which shows an embodiment of the invention by way of example.

[0010] In the drawing, a Morel cylinder, which rotates clockwise and forms part of a device for expelling vegetable impurities in a wool card, is indicated 1.

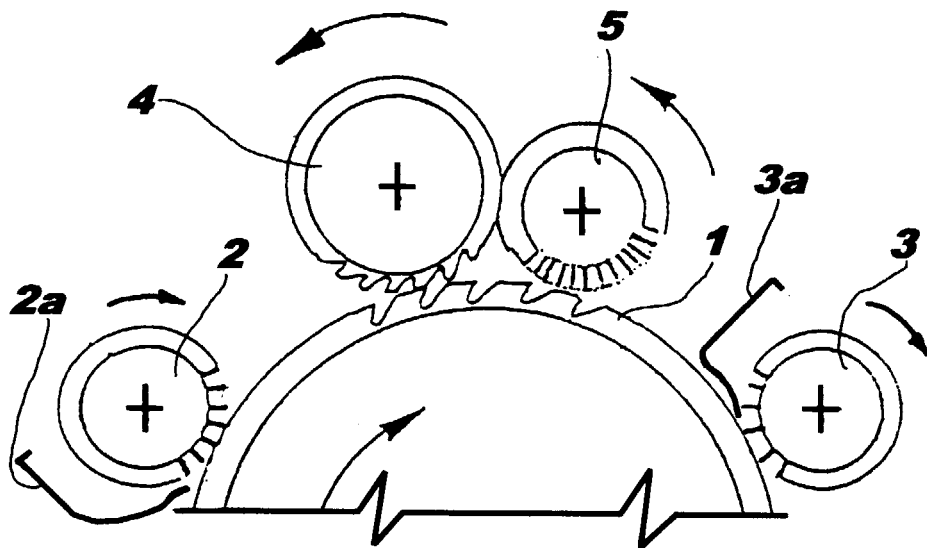
[0011] Cooperating with the Morel cylinder 1 are two burr-beaters 2, 3 which have radial blades and rotate clockwise, and each of which picks up vegetable impurities from the wads of wool transported by the Morel cylinder 1 and discharges them into a respective collector 2a, 3a.

[0012] A pair of rolls 4, 5, both rotating anticlockwise, is interposed between the two burr-beaters 2, 3. The first roll 4 is a working roll having a rigid covering with triangular points inclined in its own direction of rotation, rotating with a peripheral velocity slower than that of the Morel cylinder 1 and picking up the flow of fibres therefrom.

[0013] The second roll 5 is a roll having a brush-like covering constituted by natural or synthetic bristles and rotating with a peripheral velocity faster than that of the working roll 4 but slower than that of the Morel cylinder 1. Owing to the high density of its bristles, the brush-like roll 5 brings about an oriented turning-over of the fibres which is not adversely affected by the turbulence arising in the region between the contact points of the cylinder 1 and the rolls 4 and 5 so that, at the output of the brush-like roll 5, the wool fibres are arranged on the Morel cylinder 1 correctly, that is, parallel with one another.

Claims

1. A device for expelling the vegetable impurities in a wool card, of the type comprising at least one Morel cylinder (1) with which at least one pair of burr-beaters (2, 3) cooperates, characterized in that, between each pair of burr-beaters (2, 3) cooperating with a Morel cylinder (1) there is interposed a pair of rolls (4, 5) of which the first is a working roll (4) which has a rigid covering with triangular points inclined in its own direction rotation and which rotates at a speed slower than that of the Morel cylinder (1), picking up the flow of fibres therefrom, and the second is a roll which has a brush-like covering (5) and rotates at a speed faster than that of the working roll (4) but slower than that of the Morel cylinder (1), turning the fibres over in an orderly manner and arranging them parallel with one another on the Morel cylinder (1).





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 10 7736

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)
Y	EP 0 770 715 A (COMMONWEALTH SCIENTIFIC AND INDUSTRIAL RESEARCH ORGANISATION) 2 May 1997 (1997-05-02) * column 3, line 41 - column 5, line 9; claims 1,5,12; figures 1,3,4 *	1	D01G15/98
Y,D	FR 2 232 626 A (N.SCHLUMBERGER & CIE) 3 January 1975 (1975-01-03) * page 3, line 6 - line 33; claims 1,2,4; figure 1 *	1	
A	GB 892 111 A (SCHNEIDER,W.H.) * page 1, line 73 - page 2, line 38; claims 1,2; figure 1 *	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			D01G
Place of search	Date of completion of the search	Examiner	
THE HAGUE	28 July 2000	Munzer, E	
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			

EPO FORM 1603 03.92 (P04C01)

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

EP 00 10 7736

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.

28-07-2000

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 770715	A	02-05-1997	AU 7041696 A	01-05-1997
FR 2232626	A	03-01-1975	NONE	
GB 892111	A		NONE	

EPO FORM P449

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