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(71) Applicant: **FONDERIE OFFICINE RIUNITE F.O.R.
ING. GRAZIANO DI L. GRAZIANO & C. S.a.s.
I-13051 Biella (Vercelli) (IT)**

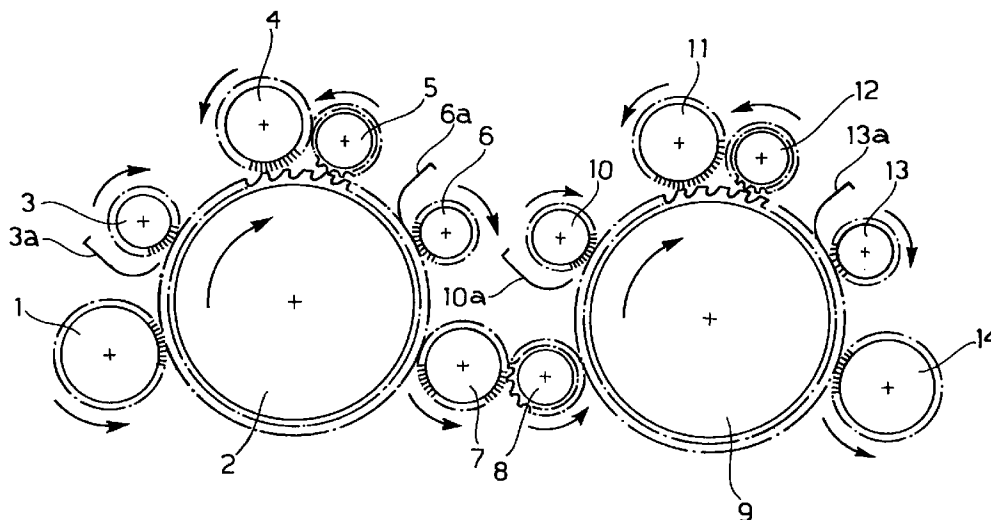
(72) Inventor: **Bacchio, Giovanni
13053 Mongrando (IT)**

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

(54) A device for removing vegetable matter in a wool card

(57) A device for the removal of vegetable matter in a wool card comprising at least one Morel roller (2;9) with at least a pair of cooperating burr-beaters (3,6;10,13). A pair of rollers (4,5;11,12) is interposed between each pair of burr-beaters (3,6;10,13) cooperating with the Morel roller (2;9), the first being a brush roller (4;11) with radial bristles which turns at a speed greater than that of the Morel roller (2;9) and which doffs

the Morel roller (2;9) completely and the second being a reverser roller (5;12) with a rigid cover having triangular points facing in the sense of rotation of the roller itself, and which turns at a speed between that of the brush roller (4;11) and that of the morel roller (2;9) and which doffs the brush roller (4;11) completely by condensing.



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Description

The present invention concerns a device for removing vegetable matter in a wool card of the type comprising at least one Morel roller with at least a pair of cooperating burr-beaters.

A device of the aforesaid type is known from International Patent Application W091/09164 which illustrates the use of two Morel rollers in tandem, each Morel roller cooperating with two burr-beaters. In this invention the web of wool fibres is not inverted during its passage through the device so that the matter found in the lower region of the web when it enters the device remains there until it reaches the exit and cannot be expelled as it never comes into contact with the blades of the burr-beaters.

Patent Application FR-A-2.232.626 describes the use on a Morel roller of two burr-beaters, between which an inverted carding unit comprising a worker and a stripper is positioned. A second inverted carding unit is disposed behind the second burr-beater.

The function of each inverted carding unit should be to effect a carding action on the Morel roller and to invert the wool. However, this function cannot be achieved in practice as the flat-pointed cover of the Morel roller does not fit in with the highly inclined triangular points of the cover of the workers, which hook onto only a small portion of the passing wool. Furthermore there is considerable disturbance and the wool is not inverted.

The object of the present invention is to produce a device of the type described for removing vegetable matter in a wool card which does not have the disadvantages of the known devices cited above.

In order to achieve this object, in the device according to the invention a pair of rollers is interposed between each pair of burr-beaters cooperating with a Morel roller, the first being a roller with a brush-like or equivalent cover which turns at a speed greater than that of the Morel roller and which doffs the Morel roller completely, and the second being a reverser roller with a rigid cover having triangular points facing in the sense of rotation of the roller itself and which turns at a speed between that of the brush roller and that of the Morel roller and completely doffs the brush roller by condensing the fibres, stratifying them vertically.

As a result of this structure, the web of wool is completely inverted, which allows its entire surface to be cleaned.

Furthermore, the transport and inversion are effected smoothly, which avoids damage to and shortening of the fibres.

The invention will now be described with reference to the accompanying drawing which illustrates schematically and in transverse section a device according to the invention.

A brush roller is indicated 1, covered with radially disposed bristles, which turns in an anti-clockwise sense and feeds the web of wool from a pre-carder (not illustrated) to a Morel roller 2 which turns in a clockwise

sense and which has a rigid cover with flat points facing in a clockwise sense. The Morel roller 2 turns with a peripheral velocity approximately 40% greater than that of the roller 1. The brush cover of the roller 1 could be replaced by a different cover, provided it is functionally equivalent to a brush cover.

A burr-beater indicated 3 has radial blades and rotates in a clockwise sense to collect some of the vegetable matter from the roller 2 and discharge it into a receptacle 3a.

The wool, following its course on the roller 2, is entirely doffed by a roller 4 having a brush or equivalent cover, which turns in an anti-clockwise sense with a peripheral speed approximately 60% greater than that of the roller 2.

The fibre web gathered by the brush 4 is entirely doffed by condensing, that is by vertical stratification of the fibres, onto a reverser roller 5 which turns in an anti-clockwise sense with a peripheral speed approximately 30% greater than that of the Morel roller 2. The roller 5 has a rigid cover with triangular points facing in an anti-clockwise sense.

A second burr-beater indicated 6 discharges vegetable matter removed from the fibre web which has been inverted by the reverser roller 5 into a receptacle 6a. A roller with a brush or equivalent covering, indicated 7, turns in an anti-clockwise sense with a peripheral speed approximately 30% greater than that of the Morel roller 2.

A second reverser roller, indicated 8, similar to the reverser roller 5, collects and inverts the fibre web, turning at a peripheral speed approximately 30% less than that of the brush roller 7.

A second Morel roller, indicated 9, having the same characteristics as the roller 2, strips the reverser roller 8 by turning in a clockwise sense with a peripheral speed which is 30% greater than that of the reverser 8 and which is therefore substantially equal to that of the first Morel roller 2.

Rollers 10, 11, 12 and 13 cooperate with the Morel roller 9, their technical characteristics and speeds of rotation being identical to those of the rollers 3, 4, 5, 6 and 7 described above whereby the rollers 10 to 13 fulfil the same function as the rollers 3 to 7 described above.

In particular, the roller 10 constitutes a third burr-beater which cooperates with a receptacle 10a, the roller 11 constitutes a fourth brush roller which gathers the fibre web and doffs it by condensing onto the reverser roller 12, while the roller 13 constitutes a fourth burr-beater which cooperates with a receptacle 13a. A fifth roller, indicated 14, has a brush or equivalent cover which conveys the fibres from the second Morel roller 9 to the drum of the carding machine (not illustrated).

The advantages of the device described above are as follows:

- the possibility of inverting the web of wool many times during the process, thereby cleaning the entire surface,

- a relatively low drafting ratio is maintained between the inlet and the outlet of the device,
- the peripheral velocity of the two Morel rollers 2 and 9 is maintained the same, which drastically reduces both the disturbance and the sucking in of air by the moving parts, enabling the velocity of the entire card to be increased considerably, 5
- the feeding and inverting systems are very smooth, being effected by brush rollers with deposition by condensing on the reverser rollers; this completely avoids damage to and shortening of the fibres. 10

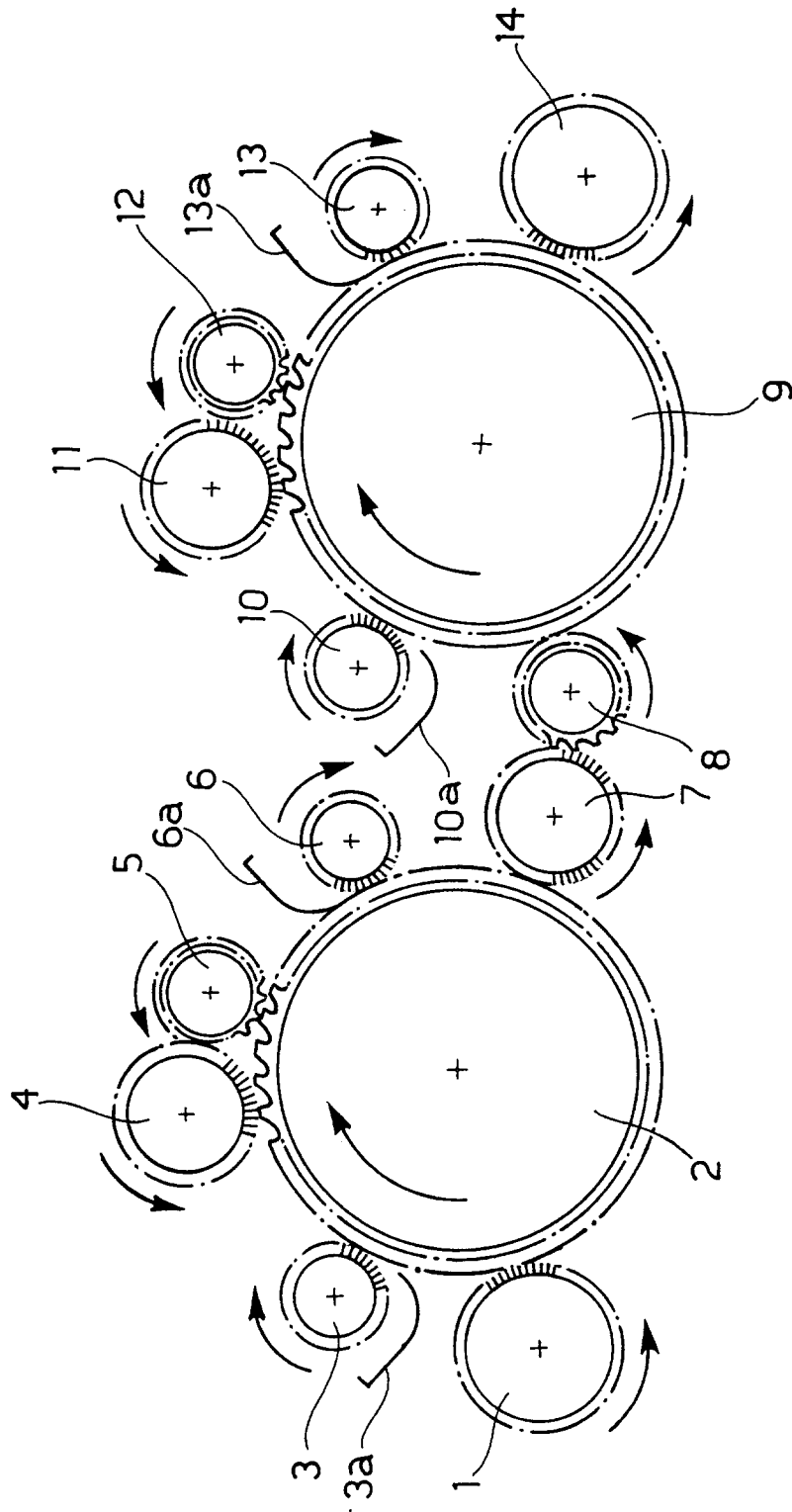
Claims

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1. A device for the removal of vegetable matter in a wool card of the type comprising at least one Morel roller (2; 9) with at least a pair of cooperating burr-beaters (3, 6; 10, 13), characterised in that, between each pair of burr-beaters (3, 6; 10, 13) cooperating with a Morel roller (2; 9), there is interposed a pair of rollers (4, 5; 11, 12) of which the first is a roller (4; 11) with a brush or equivalent cover which turns at a speed greater than that of the Morel roller (2; 9) and which doffs the Morel roller (2; 9) completely and the second is a reverser roller (5; 12) having a rigid cover with triangular points facing in the sense of rotation and which turns at a speed between that of the brush roller (4; 11) and that of the Morel roller (2; 9) and completely doffs the brush roller (4; 11), condensing the fibres by vertical stratification. 20 25 30
2. A device according to Claim 1, characterised in that it includes at least two Morel rollers (2; 9) and in that the feeding of the wool from a first Morel roller (2) to a second Morel roller (9) is achieved by means of a pair of rollers (7, 8) comprising one roller (7) with a brush or equivalent cover having a peripheral speed greater than that of the first Morel roller (2) and a reverser roller (8) having a peripheral speed less than that of the brush roller (7), in which the peripheral speed of the second Morel roller (9) is substantially equal to that of the first Morel roller (2). 35 40 45

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EUROPEAN SEARCH REPORT

Application Number
EP 96 11 5914

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.6)
Y	EP-A-0 517 635 (N.SCHLUMBERGER & CIE) * column 2, line 5 - column 3, line 28; claims 1,2; figures 1-3 *	1	D01G15/98
Y,D	FR-A-2 232 626 (N.SCHLUMBERGER & CIE) * page 1, line 23 - page 3, line 33; claims 1-4; figure 1 *	1	
A	GB-A-892 111 (SCHNEIDER,W.H.) * page 1, line 73 - page 2, line 38; claims 1,2; figure 1 *	1	
A	FR-E-4 394 (BINET,H.)		
A	PATENT ABSTRACTS OF JAPAN vol. 6, no. 174 (C-123), 8 September 1982 & JP-A-57 089622 (DAISHIN BOSEKI KK), 4 June 1982, * abstract *		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			D01G
Place of search		Date of completion of the search	Examiner
THE HAGUE		24 January 1997	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			

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