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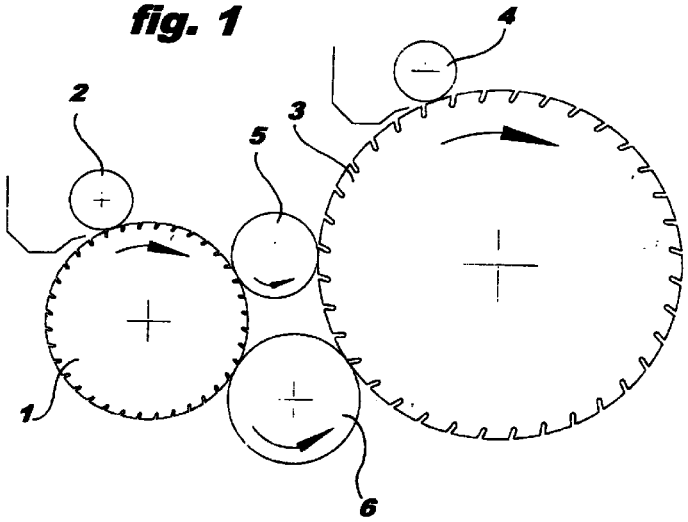
(54) "A device for promoting the expulsion of the vegetable impurities from a wool card"

(57) A device for promoting the expulsion of the vegetable impurities in a wool card comprises at least two Morel cylinders (1, 3) with each of which at least one burr-beater (2, 4) cooperates. Two independent transfer rolls (5, 6) situated at different heights are used to transfer the wool between two successive Morel cylinders (1, 3); the upper transfer roll (5) removes the outer portions (7a) of the tufts of wool (7) from the first Morel cylinder (1) and deposits them on the second Morel cylinder (3) and the lower transfer roll (6) removes the remaining portions (7b) of the tufts (7) and deposits them on the second Morel cylinder (3) at a point which, at any moment, is angularly spaced from the point at which the outer portions (7a) of the tufts (7) are deposited by the upper transfer roll (5).

fig. 1



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Description

[0001] The present invention relates to a device for promoting the expulsion of the vegetable impurities in a wool card comprising at least two Morel cylinders with each of which there cooperates at least one burr-beater.

[0002] The main characteristic of the invention lies in the fact that a first transfer roll and a second transfer roll, independent of one another and situated at different heights, are used to transfer the wool between two successive Morel cylinders, the upper transfer roll being formed and operated in a manner such as to remove from the first Morel cylinder outer portions of the tufts of wool having a thickness equal to approximately half of the total thickness of the tufts and to deposit these outer portions on the second Morel cylinder, and the lower transfer roll being formed and operated in a manner such as to remove the remaining portions of the tufts of wool and to deposit these inner portions on the second Morel cylinder at a point which, at any moment, is angularly spaced from the point at which the aforementioned outer portions of the tufts of wool are deposited.

[0003] The above-mentioned characteristic achieves the following advantages in comparison with the prior art, according to which only one transfer roll was used between two Morel cylinders.

A) The expulsion, by the burr-beater or burr-beaters which cooperate with the second Morel cylinder, of the vegetable impurities which, on the first Morel cylinder, were incorporated in the tufts of wool approximately half way through their thickness is facilitated.

The splitting of these tufts into two portions in fact brings these impurities to the surface, facilitating their expulsion by the burr-beater or burr-beaters cooperating with the second Morel cylinder.

B) A more homogenous distribution of the fibres on the second Morel cylinder is achieved, not only facilitating the removal of the impurities by the burr-beater or burr-beaters cooperating with this cylinder but also improving the carding effect performed by the carding unit disposed downstream of the Morel cylinders.

[0004] Further characteristics and advantages of the present invention will become clear from the following description, given with reference to the appended drawings, provided purely by way of example, in which:

Figure 1 is a schematic side view of a device according to the invention for promoting the expulsion of the vegetable impurities from a wool card according to the invention, and

Figure 2 is a schematic representation of a tuft of wool showing, in longitudinal section, the distribution of the impurities within the thickness of the tuft.

[0005] In Figure 1, a device for promoting the expulsion of the vegetable impurities from a wool card comprises a first Morel cylinder 1 with which at least one burr-beater 2 cooperates, and a second Morel cylinder 3 with which at least one burr-beater 4 cooperates.

[0006] Both of the Morel cylinders 1, 3 rotate in the same direction which, in the embodiment of Figure 1, is clockwise, as indicted by the arrows.

[0007] Two independent transfer rolls 5, 6, situated at different heights, are interposed between the first Morel cylinder 1 and the second Morel cylinder 3.

[0008] The upper transfer roll 5 rotates anticlockwise with a peripheral velocity greater than that of the cylinder 1 and preferably has a resilient covering, more precisely, a covering constituted by needles bent like elbows in the direction of rotation of the roll 5.

[0009] The selected distance between the periphery of the covering of the transfer roll 5 and the periphery of the Morel cylinder 1 is such that the roll 5 removes from the covering of the cylinder 1 only the outer portions, indicted 7a in Figure 2, of the tufts of wool 7 held in the covering and deposits them on the second Morel cylinder 3 which rotates clockwise with a peripheral velocity greater than that of the roll 5.

[0010] The portion of wool, indicated 7b in Figure 2, which remains on the cylinder 1 is removed by the lower transfer roll 6 which rotates anticlockwise with a peripheral velocity greater than that of the first Morel cylinder 1 and preferably has a brush-like covering, that is, a covering constituted by natural and/or synthetic radial bristles. The portion of wool which is removed by the lower transfer roll 6 is deposited on the surface of the second Morel cylinder 3 which rotates with a peripheral velocity greater than that of the transfer roll 6. This deposition takes place, at any moment, at a point on the second Morel cylinder 3 which is angularly spaced from the point on which the outer portion 7a is deposited.

[0011] The fact that the tufts of wool present on the first Morel cylinder 1 are split into two portions enables the vegetable impurities which, as indicated 8 in Figure 2, are situated in the inner, central portion of each tuft of wool 7 (that is, in the vicinity of the median plane indicated M in Figure 2) to be brought to the surface, so that they can easily be removed by the burr-beater 4 and by any further burr-beaters cooperating with the second Morel cylinder 3.

[0012] This splitting-up of the tufts of wool 7 also achieves a more homogeneous distribution of the fibres on the second Morel cylinder 3, which improves the carding effect performed by the carding unit (not shown) situated downstream of the Morel cylinders 1 and 3.

[0013] The fact that, of the two transfer rolls 5 and 6, one has a resilient covering and the other has a brush-like covering, enables the advantages of both types of covering to be utilized.

[0014] Rolls covered with resilient coverings are in

fact particularly suitable for engaging and removing hard parts such as pieces, whereas brush-like rolls are particularly effective in keeping the Morel cylinders clean.

[0015] According to a variant usable in particular for wool having a very high percentage of impurities, both of the transfer rolls interposed between two successive Morel cylinders have brush-like coverings.

Claims

1. A device for promoting the expulsion of the vegetable impurities in a wool card comprising at least two Morel cylinders (1, 3) with each of which at least one burr-beater (2, 4) cooperates, characterized in that a first transfer roll (5) and a second transfer roll (6), independent of one another and situated at different heights, are used to transfer wool between two successive Morel cylinders (1, 3), the upper transfer roll (5) being formed and operated in a manner such as to remove from the first Morel cylinder (1) outer portions (7a) of the tufts of wool (7) having a thickness equal to approximately half of the thickness of the tufts (7) and to deposit these outer portions (7a) on the second Morel cylinder (3), and the lower transfer roll (6) being formed in a manner such as to remove the remaining portions (7b) of the tufts of wool (7) and to deposit these remaining portions (7b) on the second Morel cylinder (3) at a point which, at any moment, is angularly spaced from the point at which the aforementioned outer portions (7a) are deposited.

2. A device according to Claim 1, characterized in that both of the transfer rolls (5, 6) rotate in the opposite direction to the direction of rotation of the two Morel cylinders (1, 3), each transfer roll (5, 6) having a peripheral velocity which is greater than that of the first Morel cylinder (1) but less than that of the second Morel cylinder (3).

3. A device according to Claims 1 and 2, characterized in that one of the two transfer rolls (5) has a resilient covering with needles bent like elbows and inclined in its own direction of rotation, and the other transfer roll (6) has a brush-like covering with natural and/or synthetic radial bristles.

4. A device according to Claims 1 and 2, characterized in that both of the transfer rolls have brush-like coverings with natural and/or synthetic bristles.

fig. 1

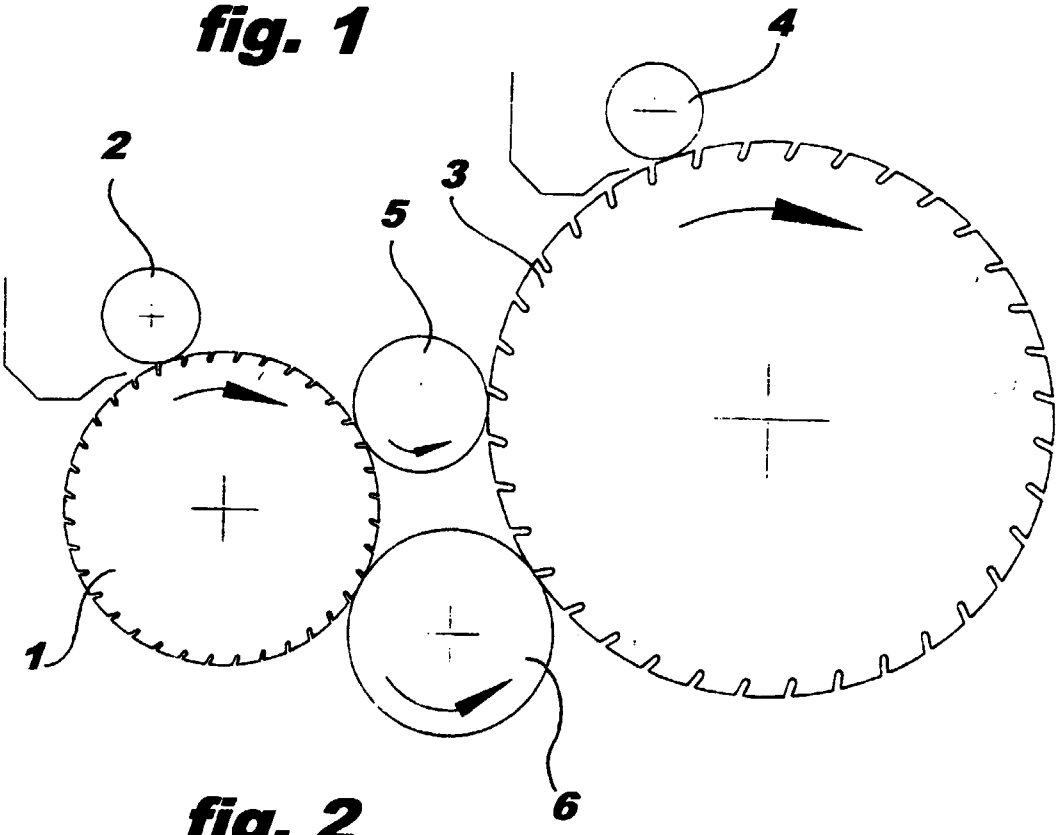
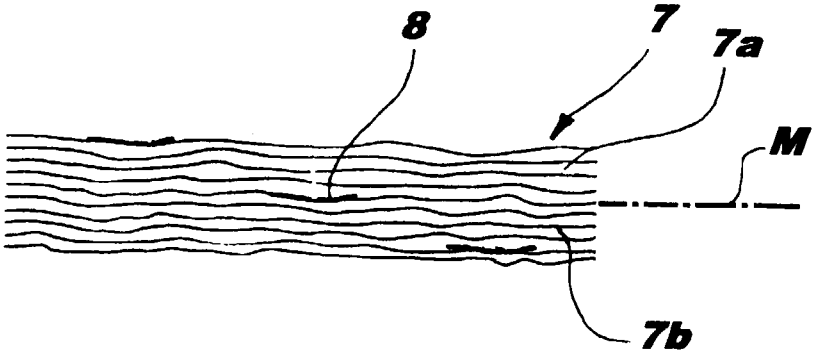


fig. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 00 10 7823

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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Y	EP 0 768 396 A (FONDERIE OFFICINE RIUNITE F.O.R.) 16 April 1997 (1997-04-16) * column 1, line 24 - column 2, line 39; claims 1,2; figure 1 *	1	
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A	PATENT ABSTRACTS OF JAPAN vol. 12, no. 122 (C-488), 15 April 1988 (1988-04-15) & JP 62 243832 A (NITTO ENG KK), 24 October 1987 (1987-10-24) * abstract *		TECHNICAL FIELDS SEARCHED (Int.Cl.7) D01G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	28 July 2000	Munzer, E

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 00 10 7823

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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28-07-2000

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