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

Vorrichtung zur Unterstützung der Ausscheidung von pflanzlichen Verunreinigungen aus einer Krempel

Appareil de promotion d'expulsion d'impuretés vegetales d'une carde dite laine

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- **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)**

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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 (see for example EP 0768396 A).

[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.

Patentansprüche

1. Vorrichtung zur Unterstützung der Entfernung von pflanzlichen Verunreinigungen in einer Wollkratze, umfassend zumindest zwei Morel-Zylinder (1, 3), wobei mit jedem zumindest ein Klettenschläger (2, 4) zusammenwirkt, **dadurch gekennzeichnet, dass** eine erste Übertragungswalze (5) und eine zweite Übertragungswalze (6), unabhängig voneinander und in unterschiedlichen Höhen angeordnet, zum Transport von Wolle zwischen zwei hintereinanderliegenden Morel-Zylindern (1, 3) eingesetzt werden, wobei die obere Übertragungswalze (5) solcherart geformt ist und betrieben wird, dass sie außenliegende Teile (7a) der Wollbüschel (7), die eine ungefähr der Hälfte der Dicke der Büschel (7) entsprechende Dicke haben, aus dem ersten Morel-Zylinder (1) herausnimmt und diese außenliegenden Teile (7a) am zweiten Morel-Zylinder (3) ablegt, und wobei die untere Übertragungswalze (6) solcherart geformt ist, dass sie die verbleibenden Teile (7b) der Wollbüschel (7) herausnimmt und diese verbleibenden Teile (7b) am zweiten Morel-Zylinder (3) an einem Punkt ablegt, welcher zu jedem Zeitpunkt in einem winkelförmigen Abstand zu jenem Punkt angeordnet ist, an dem die vorgenannten außenliegenden Teile (7a) abgelegt werden.

2. Vorrichtung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** sich beide Übertragungswalzen (5, 6) in jene Richtung drehen, die der Drehrichtung der zwei Morel-Zylinder (1, 3) entgegengesetzt ist, wobei jede Übertragungswalze (5, 6) eine Umfangsgeschwindigkeit besitzt, die größer ist als jene des ersten Morel-Zylinders (1), jedoch geringer als jene des zweiten Morel-Zylinders (3).

3. Vorrichtung gemäß den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** eine der beiden Übertragungswalzen (5) eine elastische Abdekkung mit ellbogenartig gebogenenen und in ihre eigene Drehrichtung geneigten Nadeln besitzt und die andere Übertragungswalze (6) eine bürstenartige Abdeckung mit natürlichen und/oder synthetischen radialen Borsten besitzt.

4. Vorrichtung gemäß den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** beide Übertragungswalzen bürstenartige Abdeckungen mit natürlichen und/oder synthetischen Borsten besitzen.

Revendications

1. Procédé pour favoriser l'expulsion des impuretés végétales dans une machine à carder la laine comprenant au moins deux cylindres de Morel (1, 3) avec au moins un cylindre échardonneur (2, 4) coopérant avec chacun d'entre eux, **caractérisé en ce qu'**un premier rouleau de transfert (5) et un second rouleau de transfert (6), indépendants l'un de l'autre et situés à différentes hauteurs, sont utilisés pour

transférer la laine entre les deux cylindres de Morel (1, 3) successif, le rouleau de transfert supérieur (5) étant formé et fonctionnant de manière à enlever du premier cylindre de Morel (1) des parties extérieures (7a) des touffes de laine (7) ayant une épaisseur égale à approximativement la moitié de l'épaisseur des touffes (7) et à déposer ces parties extérieures (7a) sur le second cylindre de Morel (3), et le rouleau de transfert inférieur (6) étant formé de manière à enlever les parties restantes (7b) des touffes de laine (7) et à déposer ces parties restantes (7b) sur le second cylindre de Morel (3) en un point qui, à tout moment, est espacé angulairement du point en lequel les parties extérieures (7a) susmentionnées sont déposées.

2. Procédé selon la revendication 1, **caractérisé en ce que** les deux rouleaux de transfert (5, 6) tournent dans la direction opposée à la direction de rotation des deux cylindres de Morel (1, 3), chaque rouleau de transfert (5, 6) ayant une vitesse périphérique qui est supérieure à celle du premier cylindre de Morel (1) mais inférieure à celle du second. cylindre de Morel (3).

3. Procédé selon les revendications 1 et 2, **caractérisé en ce que** l'un des deux rouleaux de transfert (5) a un revêtement élastique avec des coudes en forme d'aiguilles courbes et inclinés dans sa propre direction de rotation, et l'autre rouleau de transfert (6) a un revêtement en forme de brosse avec des crins radiaux synthétiques et/ou naturels.

4. Procédé selon les revendications 1 et 2, **caractérisé en ce que** les deux rouleaux de transfert ont des revêtements en forme de brosse avec des crins radiaux synthétiques et/ou naturels.

fig. 1

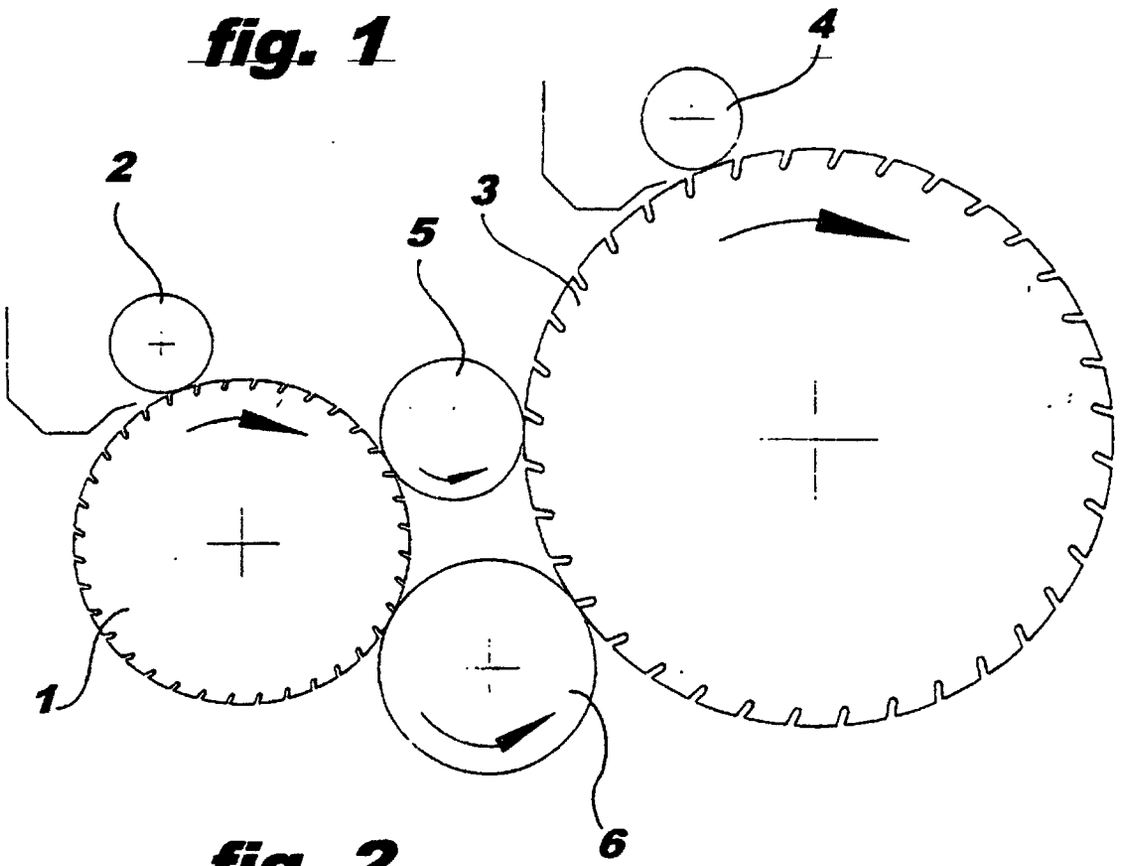


fig. 2

