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(54) **Method and machine for packaging coffee**

Verfahren und Vorrichtung zum Verpacken von Kaffee

Procédé et dispositif pour le conditionnement de café

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Description

Technical Field

[0001] The invention relates to a method of packaging coffee and a packaging machine for packaging coffee.

[0002] In the field of packaging food products, in particular coffee, several aspects, which involve specific requirements, have to be taken into account. Firstly, the coffee is to be packaged in a hermetic manner so as to keep its freshness and taste. Secondly, the packaging operation should be performed as economically as possible. Thirdly, it is desirable that the consumer will be able to open the package easily. Finally, both the closed and the opened package should exhibit an attractive outer appearance.

Background Art

[0003] EP 0 298 302 B1 discloses a vacuum pack for ground coffee, which consists of a tube of multilayer composite sheet which is provided with a tear-open strip. The vacuum pack can be wrapped in an outer wrapper, which can be made of paper.

Such types of coffee packages are also available on the market, for example, for the Applicant's Jacobs Krönung-brand. DE 38 33 939 A1 and DE 38 28 847 A1 disclose similar vacuum packs.

[0004] EP 0 121 371 B2 relates to a method of producing filmic packaging material, to which a tear tape is adhered in a machine direction, i.e. in a direction, in which the packaging material is conveyed in the packaging machine.

[0005] CH 678512 A5 describes a method and apparatus according to the preambles of claims 1 and 7. US 2,683,401 is related to a method and an apparatus for applying rip strips, which are cut from a web of rip strip material, to wrapping sheets.

Summary of the Invention

[0006] The invention provides a method of packaging coffee as defined in claim 1, which can efficiently produce a coffee package which is both easy to open and has an attractive appearance after opening. Moreover, a packaging machine for carrying out such a method is provided, in accordance with claim 7.

[0007] Accordingly, the novel method of packaging coffee includes the step of filling coffee into an inner bag. Filling the coffee into the inner bag can be performed before or after an outer wrapper, which is described in more detail below, is wrapped around the inner bag.

[0008] The inner bag can consist of an airtight and/or hermetic material in order to constitute a vacuum pack in the final state. The inner bag can be formed by wrapping a suitable material around a mandrel and forming a first end seal as well as a side seal. Thus, one end remains open, and coffee is filled into the bag at this end either before or after the outer wrapper is wrapped around the inner bag. Afterwards, an evacuating step can be carried out, and the second end can be sealed thereafter.

[0009] In the novel method of packaging coffee, an outer wrapper is wrapped around the inner bag. The outer wrapper can be made of paper, plastic film or laminate, for example, consisting of paper and a plastic film or a suitably coated paper, and is conveyed in a machine direction. In particular, the outer wrapper, rather a continuous web of plural outer wrappers is conveyed in the form of a web, and individual outer wrappers are cut at an appropriate stage. In particular, the outer wrapper can be partially wrapped around the inner bag, before the individual outer wrapper is cut from the web. However, individual outer wrappers can also be cut, before they are fed into the packaging machine and conveyed into the machine direction. Finally, cutting of individual outer wrappers can also be performed at any other appropriate time, for example, just before the wrapper is wrapped around the inner bag. A currently preferred process can be described as follows. The inner bag is cut from a web, wrapped around a mandrel and a first end seal and a side seal are formed. The individual outer wrapper is also cut from a web, and wrapped around the inner bag. In this state, the inner bag can still be on the mandrel. Afterwards coffee is filled into the inner bag, an evacuating step can be conducted, and both the inner bag and the outer wrapper are closed. As mentioned, the outer wrapper can also be wrapped around the inner bag, when the latter is already filled with coffee, and an optional evacuating step has been conducted.

[0010] In any case, individual outer wrappers are wrapped around the inner bag, in order to form a coffee package with an attractive appearance. In particular, a material of the inner bag can be specifically chosen so as to fulfill the requirements regarding airtightness, sealability and so on. Independent therefrom, the material of the outer wrapper can be chosen to provide the desired attractive appearance.

[0011] In order to allow for easy opening of the package, tear tapes are applied to the outer wrapper. This application can be performed, while plural outer wrappers are still present as a web. As an alternative, the individual tear tape can also be applied to an individual outer wrapper, after the latter has been cut from a web. Normally, one tear tape is applied to each individual outer wrapper. This application is, in a novel manner, performed substantially perpendicular to the machine direction, in other words in a cross-machine direction. This allows for an efficient method for packaging coffee and, at the same time, provides an easy-to-open package.

[0012] This is because, the inner bag can be formed, filled and sealed in one and the same packaging machine and "in line" with the wrapping of the outer wrappers. Due to the application of the tear tapes substantially perpendicular to the machine direction, the tear tapes will extend substantially horizontally in an upright package with the end seals of the inner bag being located at the bottom

and top of the package. Thus, the top part of the outer wrapper can, for example, be removed after the tear tape has been gripped and torn around the package. This allows, firstly, easy opening of both the outer wrapper and the inner bag, as the area, where the inner bag is to be opened, is exposed by removal of a part of the outer wrapper. Moreover, also in the opened state, the package exhibits an attractive appearance, as a major part of the outer wrapper can stay intact and has a relatively straight edge, where the tear tape has been torn, and only a part of the outer wrapper has been removed. In particular, when a major part of the outer wrapper remains on the inner bag, the surface thereof is still visible on the opened package, and the "branding", any product information and the like is still legible on the opened package. This is also beneficial for the consumer, as he can easily realize what the opened package contains.

[0013] As mentioned above, specific advantages can be obtained for the coffee package, since the tear tapes are applied in a direction substantially perpendicular to the machine direction. This particularly implies that the tear tape is oriented substantially horizontally in an upright package so that the above-mentioned advantageous effects can be realized. The package is to be considered in an upright position, when any printing thereon is legible, and the end seals of the inner bag are normally located at the bottom and top of the package, in this upright state.

[0014] Preferred embodiments of the method described herein are specified in dependent claims. Generally, the invention is independent of certain details regarding the application of the tear tapes. However, the tear tapes can advantageously be applied to a rear side of an outer wrapper, which is printed on a front side. In other words, the outer face of the outer wrapper is printed, in order to provide both an attractive appearance and product information. The tear tape of the package is "hidden" by being applied to the (inner) rear side of the outer wrapper. The front side can contain an indication that a tear tape is present, in order to assist the consumer in finding and using the tear tape, when the package is to be opened. It can, however, also be mentioned that the tear tape can also be applied on an outer face or a front side of the outer wrapper. In such a case, the tear tape can be particularly wide and can be printed in order to make the consumer especially aware of the presence of the tear tape and/or provide additional product information in a particularly exposed manner.

[0015] It has been found particularly advantageous for the method of packaging coffee, when the tear tapes are applied in a self-adhesive state. In this embodiment, the application of the tear tapes can be conducted particularly efficiently.

[0016] Moreover, the tear tapes can also be applied in a sealable state. Thus, they can be heat or cold sealed to the outer wrapper. Finally, they can be suitably glued to the outer wrapper.

[0017] Moreover, tests have shown that it provides advantages if the tear tapes are, before they are applied to the outer wrapper, cut to a predetermined width. In other words, the tear tapes are supplied to the outer wrapper with the required width so that they do not need to be cut to the predetermined width immediately before their application to the outer wrapper. Moreover, the tear tapes will normally be cut to the appropriate length, preferably extending across the complete outer wrapper. This cutting to length can be performed before, during or after the tear tape is applied to the outer wrapper.

[0018] In order to merely need one cutter in connection with the tear tapes, these can be supplied as rolls having a continuous strip of tear tapes with the desired width wound thereon.

[0019] In the novel method of packaging coffee, the tear tapes are preferably applied intermittently, which is advantageously compatible with the intermittent filling and packaging of coffee packages. Experiments have shown that the inventive method currently allows up to 130 or even more coffee packages to be produced per minute which corresponds to an efficient method of producing easy-to-open packages.

[0020] Corresponding to the method described above, the packaging machine includes a device for forming an inner bag, a device for filling coffee into the inner bag, preferably a device for sealing the inner bag, a conveyer for conveying an outer wrapper in a machine direction, a device for applying tear tapes to the outer wrapper substantially perpendicular to a machine direction, and a device for wrapping the outer wrapper around the inner bag. This list of components of the packaging machine described herein does not imply any particular order of method steps. Rather, numerous alternatives, as detailed above in connection with the inventive method, are possible.

[0021] Preferred embodiments of the packaging machine described herein substantially correspond to preferred embodiments of the inventive method.

[0022] In addition, the packaging machine can include a cutter for cutting the tear tapes to a predetermined width.

[0023] Moreover, the device for applying the tear tapes can include a device for accommodating at least one roll of tear tapes. This allows the tear tapes to be supplied as a continuous strip of material, from which individual tear tapes are cut and applied to the outer wrapper.

[0024] In order to be compatible with well-established machines for forming the inner bag of the coffee package, the device for forming the inner bag can include a mandrel, around which the material, which is to form the inner bag, is wrapped and sealed at one end and the side.

Claims

1. A method of packaging coffee, wherein the coffee is filled into an inner bag, and an outer wrapper is conveyed in a machine direction and wrapped around

the inner bag before or after filling the coffee into the inner bag, **characterized in that** a tear tape is applied to the outer wrapper substantially perpendicular to the machine direction and the outer wrapper is wrapped around the inner bag in such a way that the tear tape is oriented substantially horizontally in an upright package.

2. The method in accordance with claim 1, wherein the outer wrapper has a front side, which can be printed, and the tear tape is applied to a rear side of the outer wrapper.

3. The method in accordance with any of the preceding claims, wherein the tear tape is applied in a self-adhesive state.

4. The method in accordance with any of the preceding claims, wherein the tear tapes are, before being applied to the outer wrappers, cut to a predetermined width.

5. The method in accordance with claim 4, wherein the tear tapes are supplied as rolls having a predetermined width.

6. The method in accordance with any of the preceding claims, wherein the tear tapes are applied intermittently.

7. A packaging machine for packaging coffee, including a device for forming an inner bag, a device for filling coffee into the inner bag, a conveyer for conveying an outer wrapper in a machine direction, and a device for wrapping the outer wrapper around the inner bag , the machine being **characterized in that** it includes a device for applying tear tapes to the outer wrapper substantially perpendicular to the machine direction, and **in that** the wrapping device wraps the outer wrapper around the inner bag in such a way that the tear tape is oriented substantially horizontally in an upright package.

8. The packaging machine in accordance with claim 7, further including a cutter for cutting the tear tapes to a predetermined width.

9. The packaging machine in accordance with claims 7 or 8, wherein the device for applying the tear tapes includes a device for accommodating at least one roll of tear tapes.

10. The packaging machine in accordance with any of claims 7 to 9, wherein the device for forming the inner bag includes a mandrel.

Patentansprüche

1. Verfahren zum Verpacken von Kaffee, wobei der Kaffee in einen inneren Beutel eingefüllt wird und eine äußere Umhüllung in einer Maschinenrichtung zugeführt wird und um den inneren Beutel gehüllt wird, bevor oder nachdem der Kaffee in den inneren Beutel eingefüllt wurde, **dadurch gekennzeichnet, dass** ein Reißband an der äußeren Umhüllung im Wesentlichen senkrecht zur Maschinenrichtung angebracht wird und die äußere Umhüllung um den inneren Beutel auf solche Weise gehüllt wird, dass das Reißband bei einer aufrechten Packung im Wesentlichen horizontal orientiert ist.

2. Verfahren nach Anspruch 1, wobei die äußere Umhüllung eine Vorderseite besitzt, welche bedruckt werden kann, und das Reißband auf eine Rückseite der äußeren Umhüllung angebracht wird.

3. Verfahren gemäß einem der vorangehenden Ansprüche, wobei das Reißband in einem selbsthaftenden Zustand angebracht wird.

4. Verfahren gemäß einem der vorangehenden Ansprüche, wobei die Reißbänder auf eine vorbestimmte Breite zugeschnitten werden, bevor sie an den äußeren Umhüllungen angebracht werden.

5. Verfahren gemäß Anspruch 4, wobei die Reißbänder in Rollen mit einer vorbestimmten Breite zugeführt werden.

6. Verfahren gemäß einem der vorangehenden Ansprüche, wobei die Reißbänder intermittierend angebracht werden.

7. Verpackungsmaschine zum Verpacken von Kaffee, umfassend eine Vorrichtung zur Ausbildung eines inneren Beutels, eine Vorrichtung zum Einfüllen von Kaffee in den inneren Beutel, einen Förderer zum Fördern einer äußeren Umhüllung in einer Maschinenrichtung, und eine Vorrichtung zum Umhüllen des inneren Beutels mit der äußeren Umhüllung, wobei die Maschine **dadurch gekennzeichnet ist, dass** sie eine Vorrichtung zum Anbringen von Reißbändern an der äußeren Umhüllung im Wesentlichen senkrecht zur Maschinenrichtung umfasst und dass die Umhüllungsvorrichtung die äußere Umhüllung um den inneren Beutel auf solche Weise hüllt, dass bei einer aufrechten Packung das Reißband im Wesentlichen horizontal orientiert ist.

8. Verpackungsmaschine gemäß Anspruch 7, weiter eine Schneidvorrichtung zum Zuschneiden der Reißbänder auf eine vorbestimmte Breite umfassend.

9. Verpackungsmaschine gemäß Ansprüchen 7 oder 8, wobei die Vorrichtung zum Anbringen der Reißbänder eine Vorrichtung zum Unterbringen von mindestens einer Rolle von Reißbändern umfasst.

10. Verpackungsmaschine gemäß einem der Ansprüche 7 bis 9, wobei die Vorrichtung zur Ausbildung des inneren Beutels einen Aufziehdorn umfasst.

Revendications

1. Procédé d'emballage de café, dans lequel le café est chargé dans un sachet intérieur, et une enveloppe extérieure est transportée dans un sens machine et enroulée autour du sachet intérieur avant ou après le chargement du café dans le sachet intérieur, **caractérisé en ce qu'**une bande d'arrachement est appliquée sur l'enveloppe extérieure sensiblement perpendiculairement au sens machine et l'enveloppe extérieure est enroulée autour du sachet intérieur d'une manière telle que la bande d'arrachement est orientée sensiblement horizontalement dans un emballage debout.

2. Procédé selon la revendication 1, dans lequel l'enveloppe extérieure comporte un côté avant, qui peut être imprimé, et la bande d'arrachement est appliquée sur un côté arrière de l'enveloppe extérieure.

3. Procédé selon l'une quelconque des revendications précédentes, dans lequel la bande d'arrachement est appliquée dans un état autocollant.

4. Procédé selon l'une quelconque des revendications précédentes, dans lequel, avant d'être appliquées sur les enveloppes extérieures, les bandes d'arrachement sont coupées à une largeur prédéterminée.

5. Procédé selon la revendication 4, dans lequel les bandes d'arrachement sont fournies en bobines ayant une largeur prédéterminée.

6. Procédé selon l'une quelconque des revendications précédentes, dans lequel les bandes d'arrachement sont appliquées par intermittence.

7. Machine d'emballage pour l'emballage de café, comprenant un dispositif destiné à former un sachet intérieur, un dispositif pour charger du café dans le sachet intérieur, un transporteur pour transporter une enveloppe extérieure dans un sens machine, et un dispositif pour enrouler l'enveloppe extérieure autour du sachet intérieur, la machine étant **caractérisée en ce qu'**elle comprend un dispositif pour appliquer des bandes d'arrachement sur l'enveloppe extérieure sensiblement perpendiculairement au sens machine, et **en ce que** le dispositif d'enveloppement enroule l'enveloppe extérieure autour du sachet intérieur d'une manière telle que la bande d'arrachement est orientée sensiblement horizontalement dans un emballage debout.

8. Machine d'emballage selon la revendication 7, comprenant en outre un organe coupant destiné à couper les bandes d'arrachement à une largeur prédéterminée.

9. Machine d'emballage selon la revendication 7 ou 8, dans laquelle le dispositif destiné à appliquer les bandes d'arrachement comprend un dispositif destiné à loger au moins une bobine de bandes d'arrachement.

10. Machine d'emballage selon l'une quelconque des revendications 7 à 9, dans laquelle le dispositif destiné à former le sachet intérieur comprend un mandrin.

REFERENCES CITED IN THE DESCRIPTION

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