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(54) METHOD FOR PACKAGING FINISHED TOBACCO GOODS IN A MASTER BOX

VERFAHREN ZUM VERPACKEN GEFERTIGTER TABAKWAREN IN EINER SCHACHTEL

PROCÉDÉ D'EMBALLAGE DE PRODUITS FINIS DU TABAC DANS UNE BOÎTE PRINCIPALE

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Description**Technical field of the invention**

[0001] The invention relates to a method for packaging finished tobacco goods, like cigarettes, pipe tobacco, cigarettes by hand rolled tobaccoco, in a master box, in particular filling the master box with cartons of packages of cigarettes.

Background of the invention

[0002] From WO2008/065914A it is known that a master box for cigarette packs includes wrapping paper for wrapping a pack group of cigarette packs.

[0003] In a known method for packaging cigarettes in a master box, 10-20 cigarettes are packed in packages, 10-20 packages of cigarettes are packed in a carton, and 50 cartons are packet in a plastic bag which is stored in the master box. The plastic bag is folded into the master box and the master box is closed and sealed. The master boxes are stored in containers and shipped to logistic canals to the end users.

[0004] Problems which occur after the master boxes are packed until they reach the end user are:

1. insects in the package,
2. humidity, the cigarettes are drying out,
3. aging process,
4. mold, and
5. Fungi.

[0005] This results in that the cigarettes cannot be consumed and have to be destroyed.

[0006] From US2011/0042249 A1 it is known that measures like liners and use of a nitrogen atmosphere help to conserve tobacco goods.

Summary of the invention

[0007] It is an object of the present invention to provide a method for packaging finished tobacco goods, in particular cigarettes in a master box in which the above disadvantages do not or at least do less occur. To this end the method according to the invention comprises the steps of:

- folding a PE liner which is foreseen of an EVOH barrier or an Aluminium liner into the master box,
- filling the master box with liner with finished tobacco goods,
- placing sachets with oxygen absorbers in the master box,
- placing the master box in a vacuum room,
- reduce pressure in the vacuum room and in the liner and the master box,
- injecting Nitrogen in the vacuum room and/or the master box,

- repeating the steps of reducing pressure and injecting Nitrogen several times, and
- sealing the liner and the master box.

5 **[0008]** The plastic bag of the known method is replaced for a PE liner, preferably a PE liner, which is foreseen of an EVOH barrier. The EVOH barrier together with the PE keep the ambient conditions inside the liner at the same level. Because of this the ambient condition in the liner, no oxygen, will remain the same and the issues named under 1 until 5 above will not occur.

10 **[0009]** In case the humidity is too high sachets with humidity absorbers are placed into the master box before placing the master box in the vacuum room. The amount depends on the humidity of tobacco goods, type of tobacco goods and the season. The oxygen absorber sachet and the humidity absorber sachet can also be combined in one sachet.

20 **[0010]** It is noticed that from US2011/042249A a tobacco product package is known having a sealed outer overwrap. The overwrap may be multi-layered and configured to contain an internal nitrogen pressure higher than an ambient external air pressure to help conservation of tobacco goods.

25 **[0011]** In an embodiment of the method according to the invention folding the liner into the master box is done by an automatic machine which cuts a part of a tube foil, seals the bottom of the liner and fold the liner into the master box.

30 **[0012]** In a other embodiment of the method according to the invention folding the liner into the master box is done manually by pulling the liner, already cut on the right sizes including a seal in the bottom, over a mall which has the same size as the master box, pulling the master box over the mall including the liner, pulling the liner over the flaps of the master box, and pulling the master box including the liner.

35 **[0013]** In a preferred embodiment of the method according to the invention before placing the master box in the vacuum room, the vacuum room is tailor made with a working space inside that is slightly larger than the master box with the flaps in open position.

Brief description of the drawings

45 **[0014]** The invention will be further elucidated below on the basis of drawings. These drawings show an embodiment of the method for packaging finished tobacco goods in a master box according to the present invention. In the drawings:

Figure 1 shows a first step of the method in which the liner is folded over a mall;

Figure 2 shows a second step of the method in which the master box is placed over the mall and liner;

Figure 3 shows a third step of the method in which the master box with liner is taken from the mall;

Figure 4 shows a forth step of the method in which

the master box with liner is filled with cartons of cigarettes;

Figure 5 shows a fifth step of the method in which the master box with cigarettes is placed in a vacuum room and the oxygen level is reduced and the master box with liner is sealed; and

Figure 6 shows a sixth step of the method in which the vacuum room is opened and the finished master box is taken out of the vacuum room.

Detailed description of the drawings

[0015] In the figures subsequent steps of the method for packaging finished tobacco goods in a master box according to the present invention are shown. A PE liner 1 which is foreseen of an EVOH barrier is delivered as a tube foil on a roll. A machine (not shown) seals the bottom of the liner and cuts a part of the foil.

[0016] Fig. 1 shows a first step of the method in which the liner 1, already cut on the right sizes including a seal in the bottom, is pulled over a mall 3 which has the same size as a master box. In a second step a master box 5 is pulled over the mall 3 including the liner 1. This is shown in Fig. 2. In a third step the master box including the liner is pulled of the mall and the master box is ready for storage, see Fig. 3.

[0017] In the fourth step shown in Fig. 4 the master box 5 with liner 1 is filled with 50 cartons 9 of 10 packages of 20 cigarettes each. Other amounts are also possible it depends on the type of cigarettes and the size of the carton box. The cartons are placed in the PE liner which itself is already in the master box. After the filling on top of the cartons 2 to 3 oxygen absorbers 11 are placed. The amount of sachets depend on size / volume of the master box and of the type of cigarettes. The oxygen absorbers have the capability to absorb the remaining oxygen and bring the O₂ level down. Beside the oxygen absorber sachets humidity absorber 13 sachets can be placed on top of the cigarette cartons 9. The amount depend on the humidity of the cigarettes, type of cigarettes and the season. The oxygen absorber sachet 11 and the humidity absorber sachet 13 can also be combined in one sachet and can also be placed in the bottom part of the PE liner.

[0018] In the fifth step shown in Fig. 5 the master box 5 with cigarettes is placed in a vacuum room 15 and the oxygen level is reduced. The size of the vacuum room depends on the size of the master box and the amount of master boxes which need to be handled per hour/day/week. The vacuum room 15 can also handle 1, 2 or more master boxes at once. The vacuum room is always tailor made.

[0019] In the vacuum room 15 the vacuum process will start and this is performed is such a way that the cigarettes and packages are not damaged by the low vacuum, read under pressure. The flaps 7 of the master box 5 are in downside position and the PE liner is "straight" up and placed between the seal bar and flushing pipes. When

the required vacuum is reached the Nitrogen injection process starts. By inserting Nitrogen into the vacuum room and also straight into the liner 1 the Oxygen level inside the liner will go down. By repeating the vacuum and Nitrogen injection process several times the O₂ level will be reduced until 2 to 5%. It is possible to reduce the O₂ level more but this will take too much time and does not fit in the logistic process of the customer. After the vacuum nitrogen injection process the liner is sealed. This sealing process takes place in the vacuum room. Fig. 5 shows schematically the sealing process. The remaining O₂ level in the liner 1 is absorbed by the oxygen absorbers 11 who are in the sealed liner.

[0020] Then the vacuum room 15 is opened and the master box 5 is taken out of the vacuum room and the flaps 7 are folded to the closed position and taped. This is schematically illustrated in Fig. 6. Then the master box goes into the logistic process. Because the cigarettes are stored in a PE liner 1 which is foreseen of an EVOH barrier the ambient condition in the liner, no oxygen, will remain the same and the issues named under 1 until 5 above will not occur.

[0021] Although the present invention is elucidated above on the basis of the given drawings, it should be noted that this invention is not limited whatsoever to the embodiments shown in the drawings. The invention also extends to all embodiments deviating from the embodiments shown in the drawings within the context defined by the claims. Instead of cigarettes the master box with liner can also be filled with other finished tobacco goods e.g. pipe tobacco, tobacco for roll your own.

Claims

1. Method for packaging finished tobacco goods in a master box (5), comprising the steps of:
 - folding a PE liner (1) which is foreseen of an EVOH barrier or an Aluminium liner into the master box (5),
 - filling the master box with liner with finished tobacco goods,
 - placing sachets (11) with oxygen absorbers in the master box,
 - placing the master box in a vacuum room (15),
 - reduce pressure in the vacuum room and in the liner and the master box,
 - injecting Nitrogen in the vacuum room and/or the master box,
 - repeating the steps of reducing pressure and injecting Nitrogen several times, and
 - sealing the liner (1) and the master box (5).
2. Method according to claim 1, **characterized in that** the method further comprises the step of placing sachets (13) with humidity absorbers into the master box (5) before placing the master box in the vacuum

room (15).

3. Method according to claim 1 or 2, **characterized in that** folding the liner (1) into the master box (5) is done by an automatic machine which cuts a part of a tube foil, seals the bottom of the liner and fold the liner into the master box.
4. Method according to claim 1 or 2, **characterized in that** folding the liner (1) into the master box (5) is done manually by pulling the liner, already cut on the right sizes including a seal in the bottom, over a mall which has the same size as the master box, pulling the master box over the mall including the liner, pulling the liner over the flaps (7) of the master box (5), and pulling the master box including the liner.
5. Method according to any one of the preceding claims, **characterized in that** before placing the master box (5) in the vacuum room (15), the vacuum room is tailor made with a working space inside that is slightly larger than the master box with the flaps (7) in open or side wards position.

Patentansprüche

1. Arbeitsweise für das Abpacken verarbeiteter Tabakprodukte in einem Umkarton (5), welche die folgenden Schritte umfasst:
 - das Falten einer mit einer EVOH-Barriere versehenen PE-Kaschierung (1) oder einer Aluminiumkaschierung in dem Umkarton (5),
 - das Befüllen des kaschierten Umkartons mit verarbeiteten Tabakprodukten,
 - die Platzierung von Beuteln (11) mit sauerstoffabsorbierenden Mitteln in dem Umkarton,
 - die Platzierung des Umkartons in einer Unterdruckkammer (15),
 - die Reduzierung des Drucks in der Unterdruckkammer und in der Kaschierung und dem Umkarton,
 - die Zufuhr von Stickstoff in die Unterdruckkammer und/oder den Umkarton,
 - die mehrmalige Wiederholung der Schritte der Druckreduzierung und der Stickstoffzufuhr, und
 - die Abdichtung der Kaschierung (1) und des Umkartons (5).
2. Arbeitsweise nach Anspruch 1, **dadurch gekennzeichnet, dass** diese ferner einen Schritt umfasst, in dem Beutel (13) mit feuchtigkeitsabsorbierenden Mitteln in dem Umkarton (5) platziert werden, bevor dieser in der Unterdruckkammer (15) platziert wird.
3. Arbeitsweise nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, dass** das Falten der Ka-

schierung (1) in dem Umkarton (5) von einer automatischen Maschine ausgeführt wird, mit der ein Teil der Schlauchfolie abgeschnitten, die Unterseite der Kaschierung geschlossen und die Kaschierung in dem Umkarton gefaltet wird.

4. Arbeitsweise nach einem der Ansprüche 1 oder 2, **dadurch gekennzeichnet, dass** das Falten der Kaschierung (1) in dem Umkarton (5) von Hand erfolgt, indem die bereits auf das passende Format zugeschnittene Kaschierung mit einem Boden, der mit einer Dichtung versehen ist, über eine Form gezogen wird, welche die gleiche Größe wie der Umkarton besitzt, und indem der Umkarton über der Form und der Kaschierung platziert wird, die Kaschierung über die Klappen (7) des Umkartons (5) gefaltet wird und der Umkarton (5) und die Kaschierung zugefaltet werden.
5. Arbeitsweise nach einem der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** die Unterdruckkammer (15) vor der Platzierung des Umkartons (5) auf ein geeignetes Maß gebracht worden ist und der darin vorhandene Arbeitsraum etwas größer als der Umkarton bei geöffneten oder seitlich abstehenden Klappen ist.

Revendications

1. Procédé destiné à emballer des produits de tabac transformés dans un carton (boîte) étalon (master-box) (5), composé des étapes suivantes :
 - pliage du doublage PE (1), munie d'une barrière EVOH ou d'un doublage en aluminium, dans le carton (la boîte) étalon (master-box) (5),
 - remplissage du carton (de la boîte) étalon (master-box) avec doublage avec les produits de tabac transformés,
 - pose de sachets (11) avec absorbeurs d'oxygène dans le carton (de la boîte) étalon (master-box),
 - positionnement du carton (de la boîte) étalon (master-box) dans une chambre sous-vide (15),
 - réduction de la pression dans la chambre sous-vide et dans le doublage et dans le carton (la boîte) étalon (master-box),
 - injection d'azote dans la chambre sous-vide et/ou dans le carton (la boîte) étalon (master-box),
 - répétition renouvelée des étapes de réduction de la pression et de l'injection d'azote, et
 - fermeture hermétique du doublage(1) et le carton (boîte) étalon (master-box) (5).
2. Procédé selon la revendication 1, **caractérisé en ce que**, le procédé comprend en outre l'étape de la pose

de sachets (13) avec absorbeurs d'humidité dans le carton (boîte) étalon (master-box) (5) avant que le carton (boîte) étalon (master-box) ne soit placé dans l'espace sous-vide (15).

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3. Procédé selon la revendication 1 ou 2, **caractérisé en ce que** le pliage du doublage(1) dans le carton (la boîte) étalon (master-box) (5) est réalisé par une machine automatique qui coupe une partie du film tubulaire, qui ferme le fond du doublage et qui plie le doublage dans le carton (la boîte) étalon (master-box).
4. Procédé selon la revendication 1 ou 2, **caractérisé en ce que** le pliage du doublage(1) dans le carton (la boîte) étalon (master-box) (5) est effectué à la main et consiste à tirer le doublage d'ores et déjà coupé aux bonnes dimensions et muni d'un fond étanche, sur une matrice aux dimensions identiques à celles du carton (de la boîte) étalon (master-box), à placer le carton (boîte) étalon (master-box) sur la matrice, à plier le doublage sur des rabats (7) du carton (de la boîte) étalon (master-box) (5), à fermer le carton (boîte) étalon (master-box) par pliage.
5. Procédé selon l'une des revendications ci-avant, **caractérisé en ce qu'**avant de placer le carton (boîte) étalon (master-box) (5) dans l'espace sous-vide (15), l'espace sous-vide est fait sur mesure et l'espace de travail qu'il contient est un peu plus grand que le carton (boîte) étalon (master-box) avec les rabats (7) en position ouverte ou latérale.

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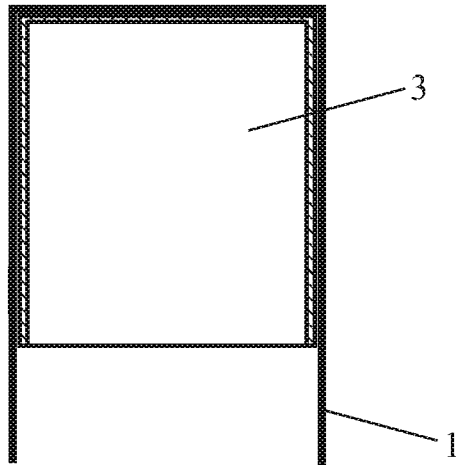


FIG. 1

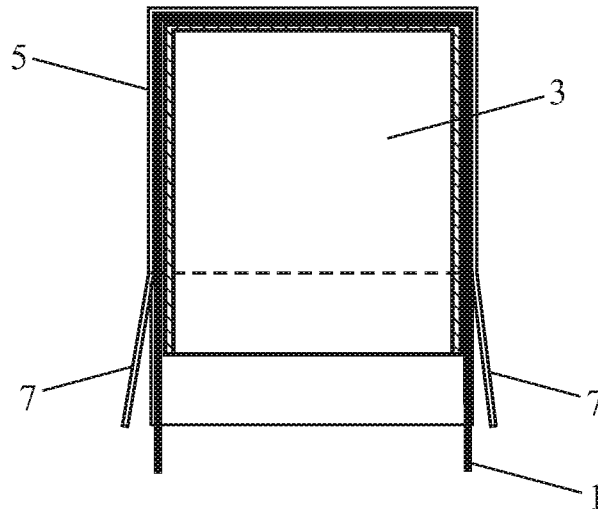


FIG. 2

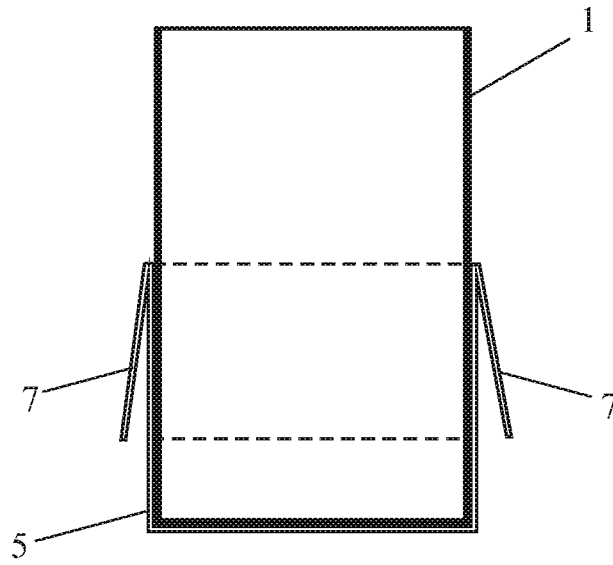


FIG. 3

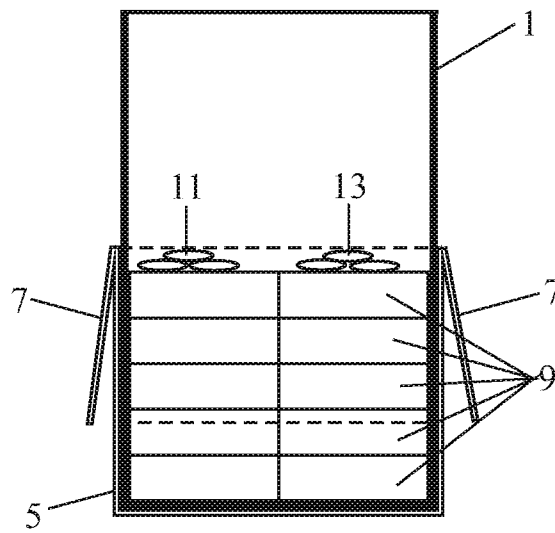


FIG. 4

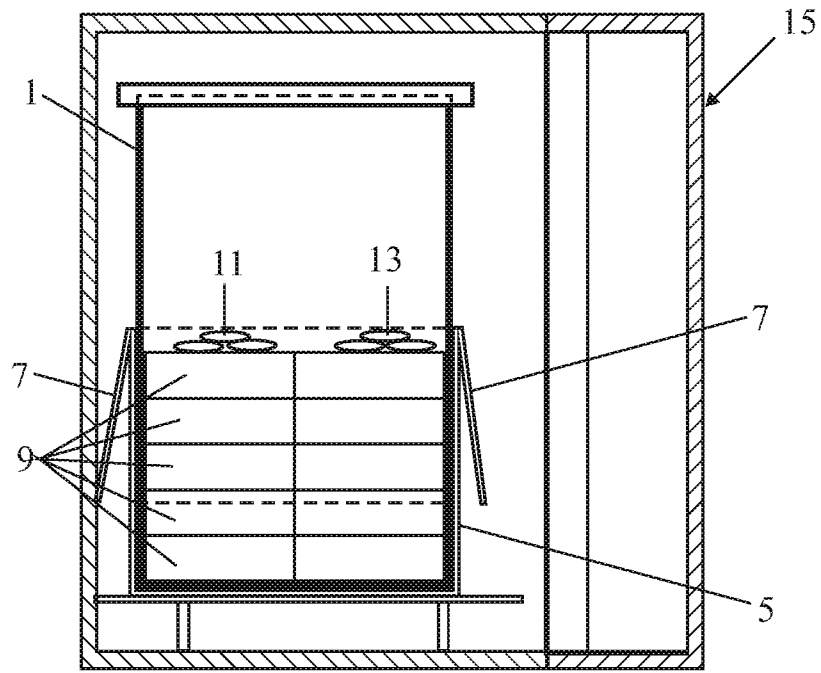


FIG. 5

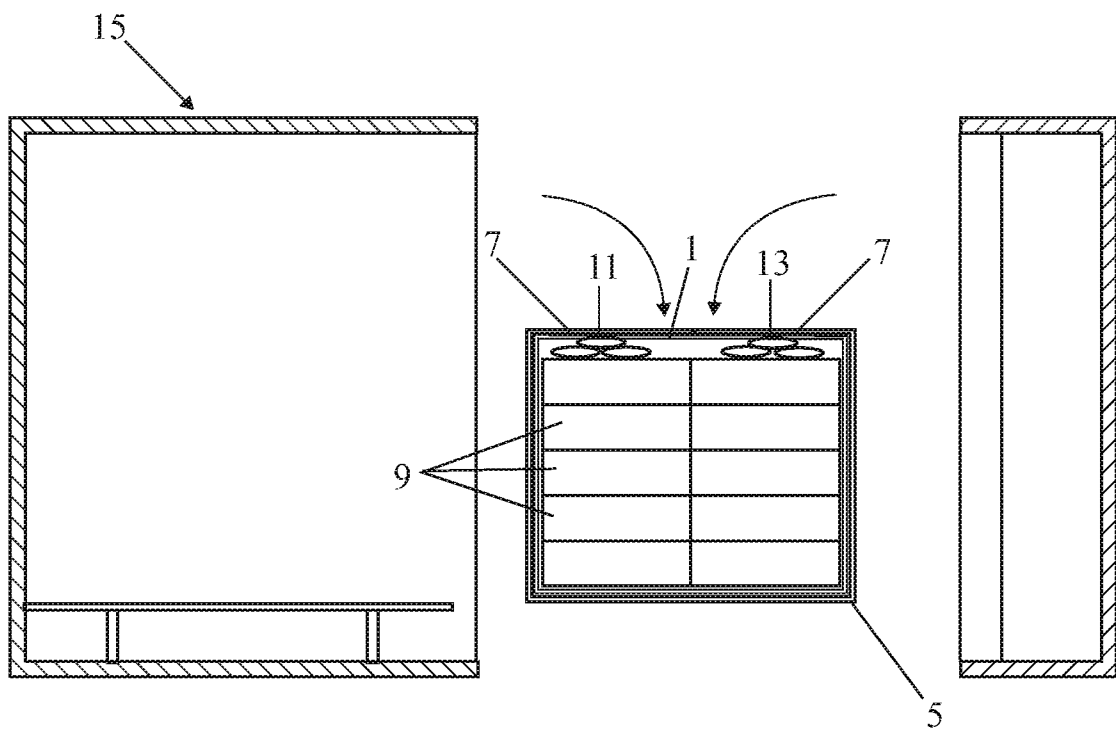


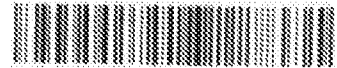
FIG. 6

REFERENCES CITED IN THE DESCRIPTION

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- US 2011042249 A [0010]
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SZABADALMI IGÉNYPONTOK

ELJÁRÁS KÉSZ DOHÁNYTERMÉK MESTERDOBOZBA VALÓ CSOMAGOLÁSÁRA

1. Eljárás kész dohánytermék mesterdobozba (5) való csomagolására, amely a következő lépéseket tartalmazza:

- behajtogatunk a mesterdobozba (5) egy PE bélést (1), amelyet előzetesen egy EVOH gáttal, vagy egy alumíniumbéléssel láttak el,

- megtöltjük a bélelt mesterdobozt kész dohány termékkel,

- oxigénelnyelő zacskókat (11) helyezünk a mesterdobozba,

- behelyezzük a mesterdobozt egy vákuumtérbe (15),

- csökkentjük a nyomást a vákuumtérben és a bélésben és a dobozban,

- nitrogént juttatunk be a vákuumtérbe és/vagy a dobozba,

- megismételjük néhányszor a nyomás csökkentésének és a nitrogén bejuttatásának lépését, és

lezárjuk a bélést (1) és a mesterdobozt (5).

2. Az 1. igénypont szerinti eljárás azzal jellemezve, hogy az eljárás tartalmazza továbbá páraelnyelő zacskók (13) mesterdobozba (5) való elhelyezésének lépését a vákuumtérbe (15) történő behelyezés előtt.

3. Az 1. vagy a 2. igénypont szerinti eljárás azzal jellemezve, hogy a bélést (1) mesterdobozba (5) egy automata gép hajtogatja bele, amely levágja egy fóliacső egy részét, lezárja a bélés alját és ráhúzza a bélést a dobozra.

4. Az 1. vagy a 2. igénypont szerinti eljárás azzal jellemezve, hogy a bélést (1) kézzel hajtogatjuk be a mesterdobozba (5), a már megfelelő méretre vágott, az alján lezárt bélés behúzásával, kézzel hajtjuk be, a mesterdobozt egy bélést tartalmazó formán keresztülhúzzuk, áthúzzuk a bélést a mesterdoboz (5) szárnyai (7) fölött, és behúzzuk a bélést tartalmazó mesterdobozt.

5. Az előző igénypontok egyike szerinti eljárás, azzal jellemezve, hogy mielőtt a mesterdobozt (5) a vákuumtérbe (15) helyezzük, a vákuumteret úgy állítjuk, hogy egy, a belsejében egy nyitott vagy oldalra hajtott pozícióban lévő számnyal (7) rendelkező mesterdoboznál kicsivel nagyobb munkatét alakítunk ki.

A meghatalmazott:

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