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54 **Packaging method for books.**

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73 Proprietor : **PUSSIKESKUS OY**
Valuraudantie 23
SF-00700 Helsinki (FI)

72 Inventor : **Janhonen, Tarmo**
Kaavintie 24B
SF-01650 Vantaa (FI)

74 Representative : **Wehnert, Werner, Dipl.-Ing. et**
al
Patentanwälte Dipl.-Ing. Graalfs, Dipl.-Ing.
Hauck, Dipl.-Ing. Wehnert, Dr.-Ing. Döring
Dr.rer.nat. Beines Mozartstrasse 23
W-8000 München 2 (DE)

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Description

The present invention relates to a packaging method, wherein the books are first wrapped in a pliable protective wrapper and then in a rectangular blank of cardboard which is folded around four sides of a book package leaving two sides uncovered.

This type of packaging method and a packaging blank used in the method are known from the applicant's US patent publication 4,627,223. Thus, this prior known method employs a packaging blank in which a protective wrapper has already been applied to the surface of a sheet of cardboard. A protective wrapper is made of a more pliable material and can be manually wrapped around the books to be packaged. A blank of cardboard consisting of a more rigid material can be folded either manually or mechanically. An apparatus for mechanical folding is disclosed in the applicant's US patent publication 4,757,666.

EP 0 035 912 discloses a package wherein plastics film material hold a number of containers clustered together to form a unit. The clustered unit is surrounded by an outer sleeve of paper board, which also provides a handle by which the package can be grasped and carried. The plastics film is used as a connecting means rather than as a protective wrapper during storage and having prior to the final preparation of a package. The outer sleeve of paper boards does not cover and protect the articles, because it is substantially narrower than the package. Therefore this prior package is not particularly suitable for packaging books.

An object of the invention is to develop further applicant's prior known packaging method in a manner that the books can be protected also during storage and handling prior to the actual packaging operation.

This object is achieved by means of a method of the invention on the basis of the characterizing features set forth in the annexed claims.

A method of the invention will now be described in more detail with reference made to the accompanying drawings, in which

fig. 1 is a perspective view of the components of a package at one stage of a packaging method and

fig. 2 shows a finished package prepared by the method of the invention.

According to a method of the invention, a book or a bundle of books are closed in a shrink plastic protective wrapper 4 to form a package 1. This wrapping in shrink plastic 4 can be effected at any stage at all, preferably at such an early stage, however, that plastic film 4 protects the books during storage and handling. It is essential that plastic film 4 makes up a part of a package to be prepared later for mailing a book or books to individual receivers.

A second component of the package comprises a

rectangular blank of cardboard 2, preferably with reinforcing strips 3 folded at its edges. A blank of cardboard may consist of kraft board or corrugated board which is sufficiently rigid for providing protection for a book parcel 1 against bumps and blows. A blank of cardboard 2 can be coated with plastics, e.g. a film of polyethylene plastic, or it can be coated with an adhesive capable of sticking to shrink plastic film 4.

A book parcel 1 wrapped in shrink plastic 4 is placed and fastened on top of a blank of cardboard 2. Especially in view of mechanically folding said blank of cardboard 2, package or parcel 1 is positioned and fastened in the central area of blank of cardboard 2. From different sizes of cardboard blanks 2 such a blank is picked that parcel 1 can be placed between reinforcing strips 3.

If the surface of a blank of cardboard 2 carries an adhesive, a plastic film 4 sticks to it simply by pressing a parcel 1 in position and by folding the ends of a blank of cardboard 2 around said package or parcel 1. If the surface of a blank of cardboard 2 is made of a PE-film, the fastening is effected e.g. by heating in two steps in a manner that one side of package 1 is first stuck to the surface of a flat blank of cardboard 2 and, after folding the ends of said blank of cardboard 2, another heating is effected for sticking the shrink plastic 4 also to the surfaces of the folded sides of a blank of cardboard 2.

If a package 1 is fastened only at its bottom side to the surface of a blank of cardboard 2, it is preferable to make sure that package 1 stays securely inside said folded blank of cardboard 2 by winding around a package a band, a tape or a string 5 which runs over the sides that remain uncovered by a blank of cardboard 2.

The overlapping ends of a blank of cardboard 2 can be fastened to each other by an adhesive, by heating (PE-plastic film coating) or by providing the facing surfaces with self-adhesive layers (coated with a self-adhesive glue).

A shrink plastic film 4 surrounding a parcel or package 1 preferably covers said package 1 on all six sides. Since wrapping of articles in a shrink plastic film is a conventional and generally applied method, its execution is not explained in more detail in this context. There are commercially available devices intended for wrapping articles in shrink plastics.

The invention is not limited to the above-described embodiment. Instead of shrink plastics, it is also possible to employ so-called constriction type of plastics for obtaining a tight preliminary package wrapped in a plastic film by stretching the plastic while wrapping it around an article. A method of the invention can of course be applied also to packaging cassettes, piles of forms or the like flat-shaped (book-like) articles.

Claims

1. A packaging method for books, wherein the books are first wrapped in a pliable protective wrapper (4) and then in a rectangular blank of cardboard (2) which is folded around four sides of a book package (1) leaving two sides uncovered the book being narrower than the width of the cardboard sheet, **characterized** in that

- a book or a bundle of books is enclosed inside a shrink or construction plastic protective wrapper (4) and thus protected the books are maintained during storage and handling prior to the final preparation of a package,
- a book package (1) enclosed in shrink or construction plastics (1) is brought on top of a separate blank of cardboard and the wrapper (4) is applied by means of an adhesive or by heating to the surface of said blank of cardboard (2) and
- the blank of cardboard (2) is folded in a conventional manner either manually or mechanically for closing the package.

2. A method as set forth in claim 1, **characterized** in that during or after the folding of the blank of cardboard (2) said wrapper (4) is applied by means of an adhesive or by heating to the surface of the folded sides of a blank of cardboard in a manner that said wrapper (4) and said blank of cardboard (2) are stuck to each other on more than one of the sides of a book package (1).

3. A method as set forth in claim 1 or 2, **characterized** in that a plastic-coated blank of cardboard (2) is applied by heating to said wrapper (4).

4. A method as set forth in claim 1, **characterized** in that around a finished package is wound a band, a tape or a string (5) which runs over the sides uncovered by said blank of cardboard (2).

5. A method as set forth in any of claims 1 - 4, **characterized** in that the overlapping ends of the blank of cardboard (2) are stuck to each other by glueing, by heating or by pressing self-adhesive surfaces against each other.

6. A method as set forth in any of claims 1 - 5, **characterized** in that a book package (1) enclosed in shrink or construction plastics is placed and secured in the central area of a blank of cardboard (2), between reinforcing strips (3) folded at the edges of said blank of cardboard (2).

Patentansprüche

1. Verpackungsverfahren für Bücher, bei dem die Bücher zuerst in eine biegsame Schutzhülle (4) und dann in einen rechteckigen Kartonzuschnitt (2) eingehüllt werden, während zwei Seiten freibleiben, wobei das Buch schmaler als die Breite des Kartonzuschnittes ist, dadurch gekennzeichnet, daß

– ein Buch oder eine Gruppe von Büchern mit einer Schutzhülle (4) aus schrumpfbarem oder Konstriktions-Kunststoff umhüllt wird und somit die Bücher während ihrer Lagerung und Handhabung geschützt gehalten werden, ehe eine Packung fertiggestellt wird,

– eine in schrumpfbarem oder Konstriktions-Kunststoff (1) eingehüllte Buchpackung (1) auf die Oberseite eines getrennten Kartonzuschnittes aufgebracht wird und die Hülle (4) mittels Klebstoff oder durch Erwärmen an der Oberfläche des Kartonzuschnittes (2) angebracht wird, und

– der Kartonzuschnitt (2) in herkömmlicher Weise entweder manuell oder maschinell gefaltet wird, um die Packung zu schließen.

2. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß während oder nach dem Falten des Kartonzuschnittes (2) die Hülle (4) mittels Klebstoff oder durch Erwärmen an den Oberflächen an den gefalteten Seiten eines Kartonzuschnittes derart angebracht wird, daß die Hülle (4) und der Kartonzuschnitt (2) an mehr als einer Seite der Buchpackung (1) aneinander haften.

3. Verfahren nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß ein kunststoffbeschichteter Kartonzuschnitt (2) durch Erwärmen an der Hülle (4) angebracht wird.

4. Verfahren nach Anspruch 1, dadurch gekennzeichnet, daß um eine fertige Packung ein Band, ein Streifen oder eine Schnur (5) gewickelt wird, das bzw. der bzw. die um die freigelassenen Seiten des Kartonzuschnittes (2) läuft.

5. Verfahren nach einem der Ansprüche 1 bis 4, dadurch gekennzeichnet, daß die sich überlappenden Enden des Kartonzuschnittes (2) durch Kleben, Erwärmen oder Aneinanderdrücken selbstklebender Oberflächen zum Aneinanderhaften gebracht werden.

6. Verfahren nach einem der Ansprüche 1 bis 5, dadurch gekennzeichnet, daß eine Buchpackung (1), die in schrumpfbarem oder Konstriktions-Kunststoff eingehüllt ist, in einem zentralen Bereich eines Kartonzuschnittes (2) zwischen an den Rändern des Kartonzuschnittes (2) umgefalteten Verstärkungsstreifen (3) angeordnet und befestigt wird.

Revendications

1. Procédé pour emballer des livres, dans lequel les livres sont tout d'abord enveloppés dans une enveloppe protectrice pliable (4) et ensuite dans un flanc rectangulaire de carton (2) qui est plié autour de quatre côtés d'un paquet de livres (1), laissant deux côtés découverts, le livre étant plus étroit que la largeur de la feuille de carton, caractérisé par les phases suivantes :

- on enferme un livre ou un paquet de livres dans une enveloppe protectrice (4) en matière plastique rétrécissable, et les livres ainsi protégés sont conservés pendant le magasinage et la maintenance avant la préparation finale d'un emballage ; 5
- on dispose un paquet de livres (1) enfermé dans une matière plastique rétrécissable (4) sur la face supérieure d'un flanc séparé de carton, et l'enveloppe (4) est appliquée au moyen d'un adhésif ou par chauffage sur la surface du flanc de carton (2) ; et 10
- on plie le flanc de carton (2) de façon classique soit manuellement soit mécaniquement pour fermer le paquet.

2. Procédé suivant la revendication 1, caractérisé en ce que pendant ou après le pliage du flanc de carton (2), ladite enveloppe (4) est appliquée au moyen d'un adhésif ou par chauffage sur les surfaces des côtés pliés d'un flanc de carton de façon que l'enveloppe (4) et le flanc de carton (2) soit collé l'un à l'autre sur plus de l'un des côtés du paquet de livres (1). 15 20

3. Procédé suivant la revendication 1 ou 2, caractérisé en ce qu'un flanc de carton (2) revêtu de matière plastique est appliqué par chauffage sur l'enveloppe (4). 25

4. Procédé suivant la revendication 1, caractérisé en ce qu'une bande, un ruban ou un cordon (5) est enroulé autour d'un paquet fini et s'étend sur les côtés laissés découverts par le flanc de carton (2). 30

5. Procédé suivant l'une quelconque des revendications 1 à 4, caractérisé en ce que les extrémités du flanc de carton (2) qui se recouvrent sont collées l'une à l'autre au moyen de colle, par chauffage ou en pressant l'une contre l'autre des surfaces auto-adhésives. 35

6. Procédé suivant l'une quelconque des revendications 1 à 5, caractérisé en ce qu'on dispose et on fixe un paquet de livres (1) enfermé dans une matière plastique rétrécissable, dans la région centrale d'un flanc de carton (2), entre des bandes de renforcement (3) repliées sur les bords du flanc de carton (2). 40

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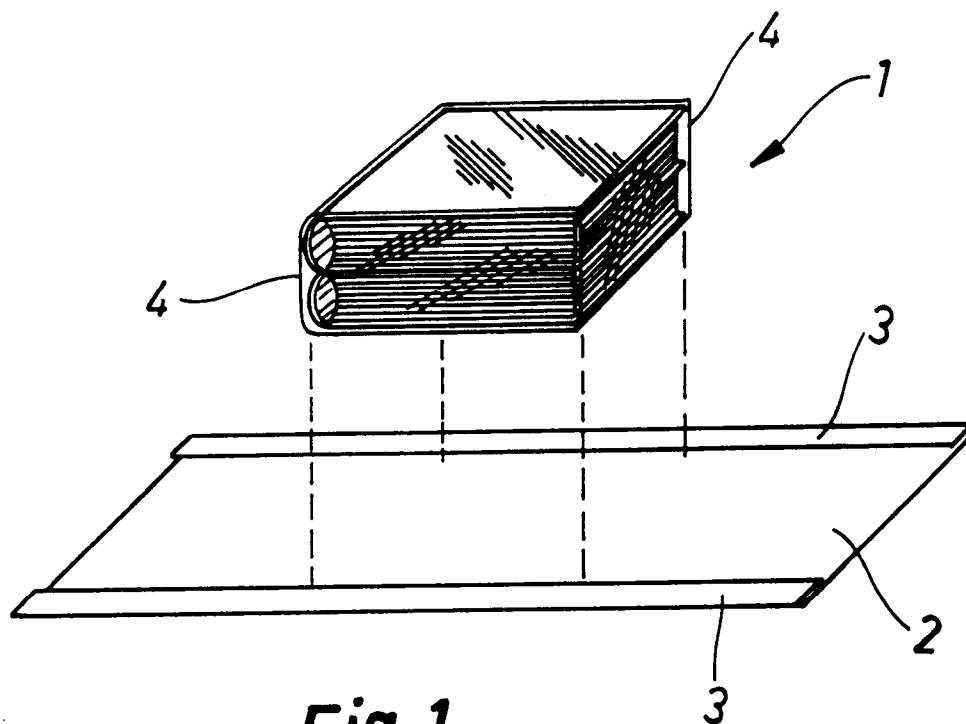


Fig. 1

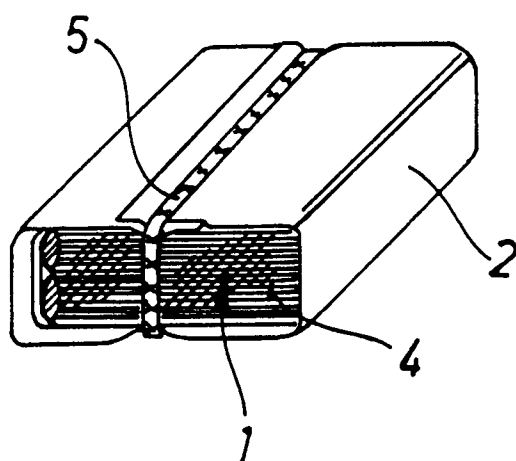


Fig. 2