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(54) **PACKAGE FOR A CUTTING LINE FOR LAWN MOWERS, BRUSH CUTTERS AND THE LIKE**

VERPACKUNG FÜR EINEN MÄHFADEN FÜR EINEN RASENTRIMMER, FREISCHNEIDER ODER DERGLEICHEN

EMBALLAGE POUR FIL DE COUPE POUR TONDEUSES À GAZON, DÉBROUSSAILLEUSES ET DISPOSITIFS SIMILAIRES

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Description

[0001] In the field of gardening equipment for use at both amateur and professional level, the use is well known of grass cutting heads for lawn mowers, brush cutters and the like, which use, as cutting elements, cutting lines in polymeric material. These lines project from a housing, which is carried in fast rotation around the drive shaft of the machine, and, due to centrifugal effect, they cut the vegetation. The cutting lines are subject to wear and breakage, and therefore they must be often replaced. For this purpose, packages of cutting lines in polymeric material are marketed, containing a several meters of line for its replacement in the cutting heads.

[0002] Usually, these lines are produced in polyamides with different chemical structures, all usually containing amide group CO-NH. Among the most important starting products for the production of these cutting lines there are the caprolactam, the adipic acid, and the hexamethylene diamine. Polyamides 6 and 6.6. are often associated with the mark "nylon". The features of the single polyamides do not differ much from each other; Immediately after the thermoplastic working, under dry condition, they are hard and less or more fragile materials. Following the absorption of water from the atmosphere or following water conditioning, they become more tough and abrasion resistant.

[0003] The packages used for marketing these materials are usually open and can last for a very long time before they finish, above all if the user does not use great quantities of line. This can entail, also based upon the environmental conditions of use, an excessive drying of the product and thus the loss of the characteristics of abrasion resistance and of toughness linked with the water absorption inside the polymeric structure.

[0004] The object of the invention is to provide a package, which allows a better conservation of the polymeric material forming the cutting line also after the first use thereof.

[0005] This objective is achieved by a package according to claim 1.

[0006] The package of cutting line made of polymeric material for brush cutters, lawn mowers, cutting devices for removing side shoots and the similar, comprises an aperture provided with a removable cap which can be applied in a reversible manner to the package, so that the package - once opened - can be effectively closed again in order to maintain the humidity conditions inside it. It is also possible, both during the packaging phase and during use, to add water inside the package, so as to maintain a high humidity condition inside the package and therefore to maintain the polymer, forming the cutting line, water- logged.

[0007] Further characteristics and embodiments of the package according to the invention are described in the appended dependant claims, and will be described in greater detail with reference to an embodiment disclosed hereunder.

[0008] The drawings 1-3 show a practical non limiting embodiment of the invention. The drawings 4-6 show comparative packages.

figure 1 shows a side view of a package according to one embodiment;
figure 2 shows a side view similar to that of figure 1 of a plurality of stacked packages;
figure 3 shows a plan view according to III-III in figure 1;
figure 4 shows a comparative package not forming part of the invention;
figure 5 shows a further comparative package not forming part of the invention; and
figure 6 shows a section along VI-VI in figure 5.

[0009] With initial reference to figures 1 to 3, the package, indicated as a whole by reference number 1, includes a shell structure formed by a pair of semi-shells 1A, 1B made of thermoformed, for example vacuum molded, plastic material. Once coupled, the semi-shells 1A, 1B define a housing space, inside which the cutting line F is wound, as shown in figure 3. More in particular, the semi-shells 1A, 1 B are welded along the edge 1C of the package and can have respective projections, which form a slot or eyelet 1D for hanging the package on a displayed.

[0010] Characteristically, one of the two semi-shells (in the example the semi-shell 1A) has an approximately round aperture in a substantially central position.

[0011] Around the central aperture of the upper semi-shell 1A, a ring or collar 3 is applied, for example a ring in plastic material welded, for example by means of ultrasounds, or glued, or in any way blocked to the laminar material forming the upper semi-shell 1A. The ring or collar 3 can be coupled in a reversible manner to a cover or cap 5. The coupling can be made through a thread, a bayonet grafting, a shape coupling joint or in any other manner. The coupling can be provided with a security seal which, once removed, allows to remove and to place the cap 5 again, so as to open and close the container or package 1. In this way, the user can open the package and extract the desired quantity of cutting line, cut it and close the package again by means of the cap 5. This safeguards the humidity conditions inside the package 1, conditions which can be made optimal in terms of saturation of the polyamide or other analogous polymer which forms the line F by adding of a small quantity of water inside the package.

[0012] Advantageously, in order to allow a simpler storage of the packages 1 in a small space, both for display and for transportation or storage, on the face of the package 1 opposite to that on which the cap 5 is applied to the ring 3, the semi-shell 1B has a cavity 7 having a shape substantially corresponding to, and preferably slightly wider, than the cap 5. In this way it is possible to stack (see figure 2) more packages 1 one on top of the other, in such a way that the cap of each package inserts in the

cavity 7 of the over-lying package.

[0013] In a comparative package not forming part of the invention (figure 4) the aperture for the extraction of the cutting line F is obtained in a tangential position or on the edge of the package, instead of on the front face of one of the semi-shells 1A, 1B forming the package, so that the line exits laterally and not centrally. In this case, according to an advantageous embodiment, the aperture can be surrounded by a bush 11 which forms the seat for a cap 13 which can be inserted in a reversible manner inside the bush 11 in order to close the package 1 with a sufficient sealing degree, analogously to what occurs with the cap 5 in the embodiment of figures 1 to 3. In this case again, the user can close the package 1 with the cap 13 every time he/she has extracted the desired quantity of line F, to safeguard the desired high humidity conditions inside the package and therefore to maintain the characteristics of toughness and abrasion resistance of the line F. In order to facilitate unwinding of the line, this can be wound on a spool rotatingly housed inside the package.

[0014] Figures 5 and 6 show a further comparative package not forming part of the invention which, in this case, is produced by blow molding, in a manner similar, for example to the technique used for producing bottles of mineral water. The package indicated with the reference number 51 is formed by a single body 53 instead of by two welded semi-shells. The body 53 is produced by blow-molding in a mold, in which a tube made of polymeric material and coming from the extruder is inserted. The mold is closed so as to cut the tube of polymeric material along a substantially circular edge, and air is blown inside the tube of polymeric material still at the plastic status. The air is injected through a needle which perforates the polymeric material in correspondence of the portion which will be subsequently removed to form the aperture for the extraction of the line. With the molding operation the body 53 of the package is obtained, provided with a collar or ring 55 formed by molding along with the body 53. The ring or collar 55 is provided with a thread or other constraining mechanism, formed by molding, on which the cover 57 screws or engages. The membrane of plastic material which remains for closing the collar 55 is removed by means of an adequate cutting tool after cooling of the molded package. With the same molding it is possible to form - if required - a projection 59 forming a slot, an eyelet or a hook for hanging the package on a displayer.

[0015] The cover 57 can be engaged in a reversible manner with the collar or ring 55, instead of through a thread, by means of a bayonet grafting, through friction or in other suitable manner.

[0016] As in the case of the embodiment of figures 1 to 3, also in the case of blow-molded package a cavity can be provided on the face opposite to the cap or cover, to allow more packages to be stacked.

[0017] With the package object of the present invention it is possible for the user to maintain the line F always in the optimal conditions for its use, guaranteeing that it is always water-logged or in any way sufficiently impregnated with water. It is also possible that a certain quantity of water is loaded inside the package during the phase of production of the package itself, so that, even in case of particularly long periods of storage in dry environmental conditions and with an imperfect seal of the package 1, the line F remains always water-logged and therefore it remains always ready for use as the package is open.

Claims

1. A package (1) of cutting line (F) made of polymeric material for brush cutters, lawn mowers, cutting devices for removing side shoots and the like, including: a laminar plastic material defining a housing shell for housing said line (F), said housing shell having a substantially flat form; an aperture on a first side in said shell, said aperture being arranged in a nearly central position on a first face of said shell and being provided with a removable cap (5), which can be applied in a reversible manner to said package and which projects from said shell; a cutting line (F) in said housing; **characterized in that** said shell is formed by two semi-shells (1A,1B) welded along an intermediate plane of said package; said aperture is provided on a first one of said semi-shells and said removable cap (5) projects from said first semi-shell (1A); and that a cavity (7) is provided on a second one (1B) of said semi-shells, said cavity being arranged nearly in correspondence of said aperture, in such a way that a plurality of packages can be stacked by arranging the cap (5) of one package in correspondence of and inside the cavity of an adjacent package.

2. Package as claimed in claim 1, containing water in order to maintain said cutting line (F) under optimum humidity conditions.

3. Package as claimed in claim 1 or 2, wherein said cutting line (F) is made of a plastic material containing amide groups (CO-NH).

4. Package as claimed in one or more of the previous claims, wherein said cap (5) is a screw or bayonet cap.

Patentansprüche

1. Paket (1) eines Schneidfadens (F) aus Polymermaterial für Motorsensen, Rasenmäher, Schneidgeräte zum Entfernen von Seitentrieben und dergleichen, Folgendes umfassend: ein laminares Kunststoffmaterial, das einen Gehäusemantel zur Aufnahme des Fadens (F) begrenzt, wobei der Gehäusemantel ei-

ne im wesentlichen flache Form aufweist; eine Öffnung auf einer ersten Seite im Mantel, wobei die Öffnung in einer nahezu zentralen Position auf einer ersten Oberfläche des Mantels angeordnet ist und mit einer abnehmbaren Kappe (5) versehen ist, die auf umkehrbare Weise auf dem Paket angebracht werden kann und von dem Mantel vorragt; einen Schneidfaden (F) in dem Gehäuse; **dadurch gekennzeichnet, dass** das Gehäuse aus zwei Halbmänteln (1A, 1 B) gebildet ist, die entlang einer mittleren Ebene des Pakets angeschweißt sind; dass die Öffnung auf einer ersten der Halbmäntel vorgesehen ist und die abnehmbare Kappe (5) vom ersten Halbmantel (1A) vorragt; und dass ein Hohlraum (7) auf einem zweiten (1B) der Halbmäntel vorgesehen ist, wobei der Hohlraum nahezu in Entsprechung zu der Öffnung derart angeordnet ist, dass eine Mehrzahl von Paketen gestapelt werden kann, indem die Kappe (5) eines Pakets in Entsprechung zum und innerhalb des Hohlraums eines angrenzenden Pakets angeordnet wird.

2. Paket gemäß Anspruch 1, das Wasser enthält, um für den Schneidfaden (F) optimale Feuchtigkeitsbedingungen zu gewährleisten.

3. Paket gemäß Anspruch 1 oder 2, wobei der Schneidfaden (F) aus Kunststoffmaterial gemacht ist, das Amidgruppen (CO-NH) enthält.

4. Paket gemäß einem oder mehreren der vorangehenden Ansprüche, wobei die Kappe (5) eine Schraub- oder eine Bajonettverschlusskappe ist.

Revendications

1. Emballage (1) de fil de coupe (F) en matériau polymère pour débroussailleuses, tondeuses à gazon, dispositifs de coupe destinés à retirer des pousses latérales et similaire, comprenant : un matériau plastique laminaire définissant une coque de logement pour loger ledit fil (F), ladite coque de logement présentant une forme sensiblement plate ; une ouverture sur un premier côté dans ladite coque, ladite ouverture étant disposée dans une position presque centrale sur une première face et étant dotée d'un couvercle amovible (5) qui peut être appliqué de manière réversible sur ledit emballage et qui dépasse de ladite coque ; un fil de coupe (F) dans ledit logement ; **caractérisé en ce que** ladite coque est formée par deux demi-coques (1A, 1B) soudées le long d'un plan intermédiaire dudit emballage ; ladite ouverture est prévue sur une première desdites demi-coques et ledit couvercle mobile (5) dépasse de ladite première demi-coque (1A) et **en ce qu'**une cavité (7) est prévue sur une seconde (1B) desdites demi-coques, ladite cavité étant disposée presque en correspondance avec ladite ouverture de telle manière qu'une pluralité d'emballages puisse être empilée en disposant le couvercle (5) d'un emballage en correspondance et à l'intérieur de la cavité d'un emballage adjacent.

2. Emballage selon la revendication 1, contenant de l'eau dans le but de maintenir ledit fil de coupe (F) dans des conditions d'humidité optimales.

3. Emballage selon la revendication 1 ou 2, dans lequel ledit fil de coupe (F) est fabriqué en un matériau plastique contenant des groupes d'amide (CO-NH).

4. Emballage selon l'une ou plusieurs quelconques des revendications précédentes, dans lequel ledit couvercle (5) est un couvercle à vis ou à baïonnette.

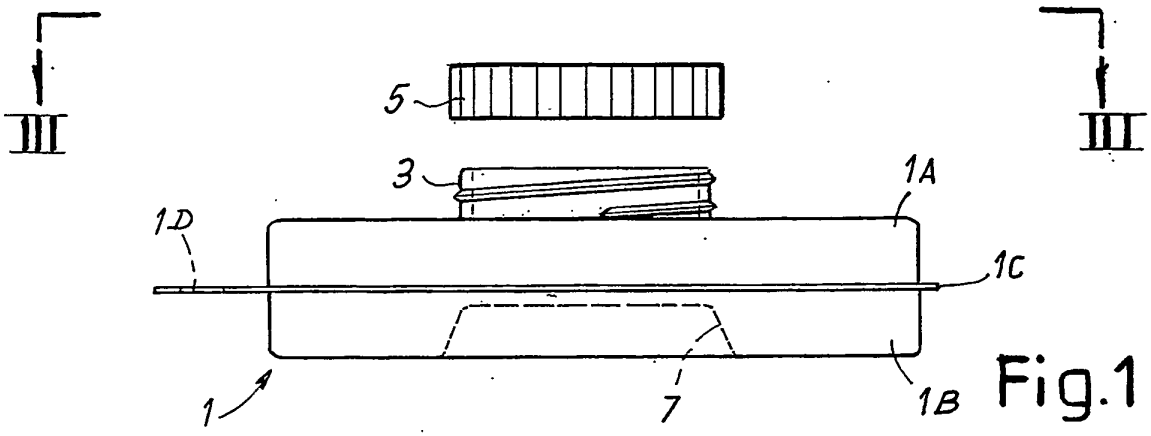
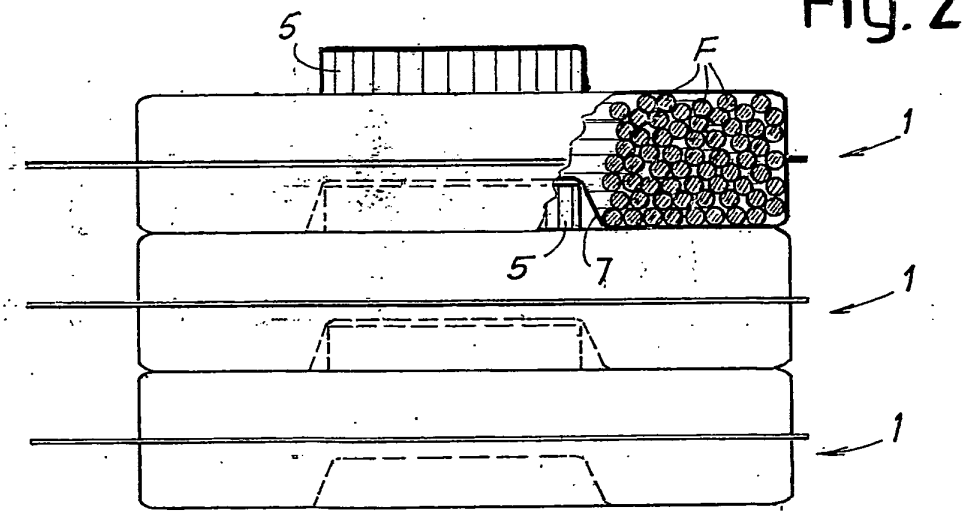


Fig.1

Fig.2



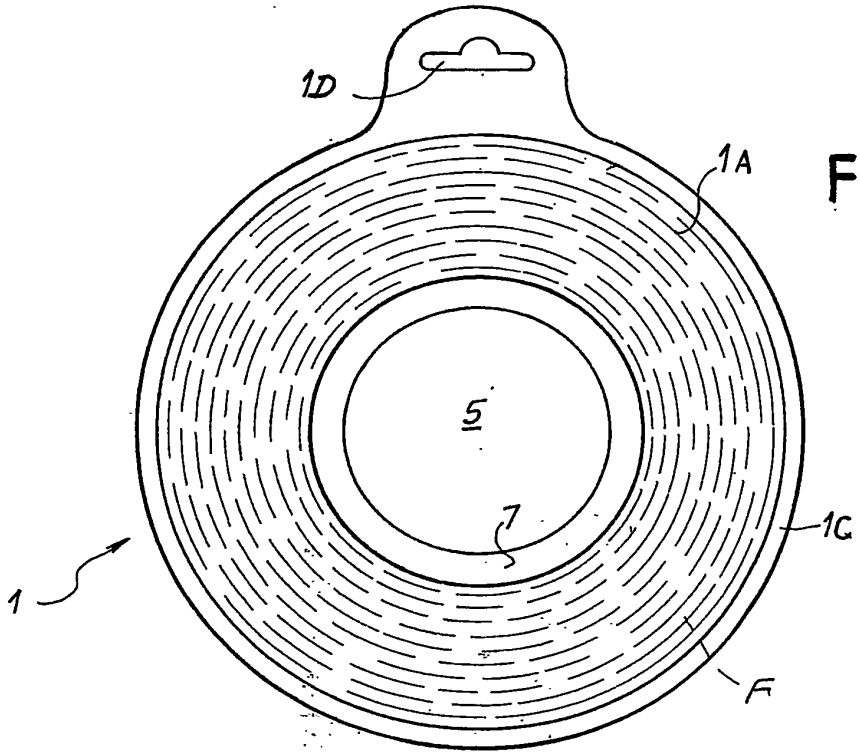


Fig. 3

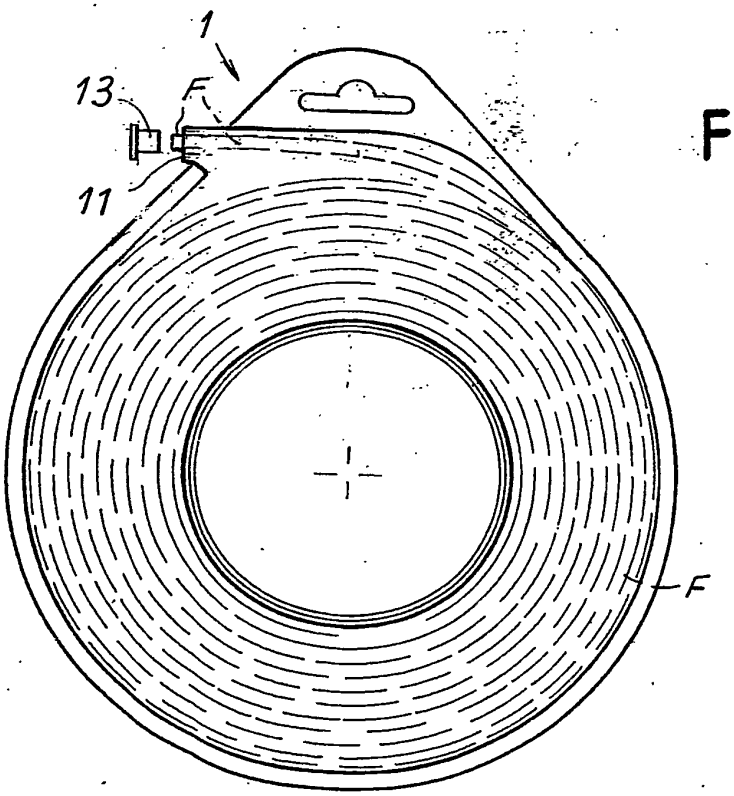


Fig. 4

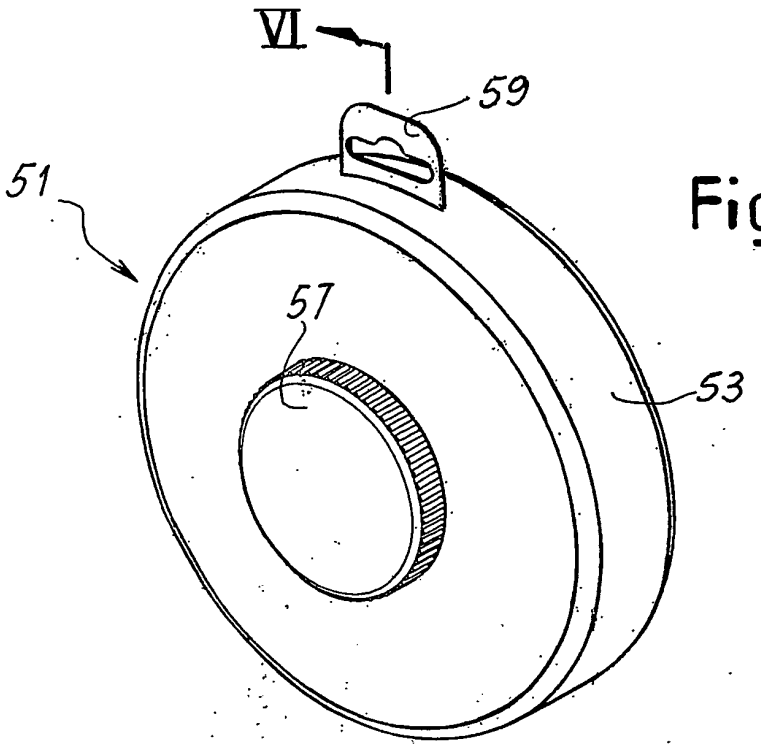


Fig. 5

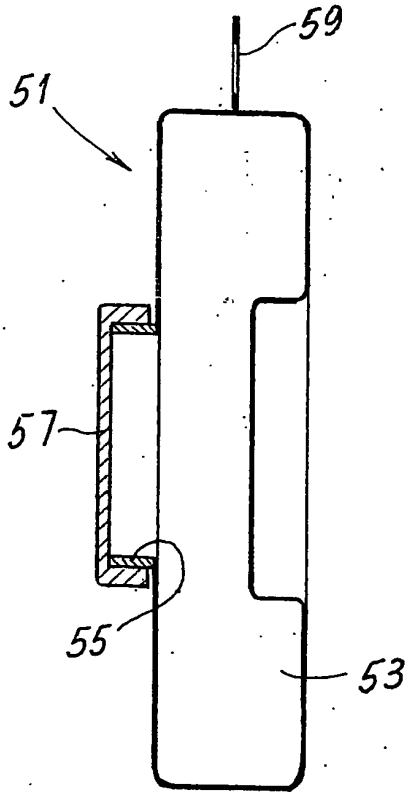


Fig. 6