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(54) **Package for coiled hoses or cables**

Verpackung für gewickelten Schläuche oder Kabel

Emballage pour tuyaux ou câbles enroulés

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(56) References cited:
**BE-A- 442 984**
**GB-A- 429 464**

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## Description

**[0001]** The present patent application relates to a method for packaging a flexible hose or cable wound in a skein.

**[0002]** As is well known the packaging of flexible hoses or skeins is accomplished thanks to reels which allow to form skeins of cylindrical shape provided with a central hole.

**[0003]** Once such a skein has been formed, it is to be enveloped with a heat shrinking, extensible, or similar sheath which encompasses and holds the outer turns of the flexible hose (or of the cable) that forms the skein itself.

**[0004]** This traditional technology provides for packaging to be completed by the application of a series of straps, arranged radially, which encompass the section of the skein in three or four equidistant points and which are effectively able to keep compact all turns of the skein itself.

**[0005]** This type of packaging is extremely reliable as long as all that is required is to transport or store the aforesaid skeins.

**[0006]** However, it is not found quite as satisfactory when segments of hose or cable need to be extracted and cut from one such skein.

**[0007]** In this event, it is inevitably necessary to cut the aforesaid series of straps. This entails that the skein itself is then held only by the aforesaid peripheral sheath, which alone can hold only the outer turns of the skein.

**[0008]** All other turns are no longer held in any way and hence inevitably become disarranged in a wholly uncontrolled manner which severely penalises any subsequent storage, transportation, and further uncoiling operations.

**[0009]** Document BE 442 984 A discloses a method for producing a protective wrapping for balls of thread or yarn. The protective wrapping is formed by a large number of narrow strips of flexible material wound around the ball at an angle with respect to the axis of the ball and partially superposed on each other in such a way to form a continuous coating which perfectly covers all the surface of the ball to be protected except, at most, for two small holes located on the axis of the ball for extracting/unwinding the thread or yarn from the ball itself. To give the wrapping sufficient rigidity to keep its shape even when the last turns of thread or yearn are unwound from the ball (so that the the wrapping itself doesn't collapse causing the entanglement of the thread or yearn), two or more complete layers of strips are wound around the ball, two consecutive layers having strips wound at opposite angles with respect to the axis of the ball.

**[0010]** Continuity of the coating is important for protection and for preserving the oiling and moisture content of thread and yearn in the ball.

**[0011]** The aim of the invention according to claim 1 is to realise a method for packaging a skein of flexible hose or cable which is able exactly to hold and contain all the turns of the skein - not just the outer ones, but also those positioned progressively more internally - until completely unwound.

**[0012]** In this way it is possible to prevent the aforesaid deleterious uncontrolled disarrangement which, as noted above, constitutes a drawback felt deeply by the operators in the industry.

**[0013]** For the sake of greater clarity, the description of the invention continues with reference to the accompanying drawings, provided by way of non limiting illustration, in which:

- Figure 1 is an axonometric view showing the skein complete with the subject sheath, in the version wherein said container must not occlude the inlet of the central hole of the skein itself;
- Figure 2 illustrates the case wherein the packaging container occludes the inlet of the central hole of the skein.

**[0014]** With reference to said figures, the idea at the basis of the present invention has been to wrap a skein of flexible hoses or cables (M) with an extensible ribbon (N) which repeatedly envelopes the entire body of the skein itself, from one part to the other, according to successive windings, lying on the planes intersecting the skein, whose orientation varies by a few degrees at each successive winding.

**[0015]** The application of the extensible ribbon according to the aforesaid procedures allows the formation of a veritable cladding that completely and exactly coats the skein, both in correspondence with the two opposite lateral faces and in correspondence with its peripheral shoulder. In particular, the coating of each of the lateral faces of the skein is a sort of dial comprising the aforesaid successive segments of extensible ribbon.

**[0016]** It is interesting to note that, at the end of a similar coating operation, no turn of the skein is not contained within this sort of cladding or container.

**[0017]** The coating provided in correspondence with each of the lateral faces of the skein could be effected in such a way as to occlude completely, partly, or not at all, the central hole on the skein in question through which the extraction of the flexible hose or of the cable must be conducted.

**[0018]** In the version in Figure 1 the windings of extensible ribbon (N) are numbered from (1) to (9) and lie on planes tangential to an imaginary central hole having a diameter roughly equal to that of the inlet (B) of the hole of the skein (M).

**[0019]** In the version in Figure 2, the windings of extensible ribbon (N) are numbered from (1) to (6) and lie on diametral planes.

**[0020]** In the case wherein the inlet of this central hole of the skein has not been occluded during the aforementioned coating operation - as shown in Figure 1 - the

operation of unwinding the skein can be said to be immediately executable. It can also be said that the dimensions of the central hole of the container, obtained in correspondence with the hole of the skein, could be determined at will, possibly as a function of the type of cable or hose wound in the skein itself.

**[0021]** On the other hand, in the case wherein the inlet of the central hole of the skein has been completely occluded by means of the aforesaid packaging coating - as shown in Figure 2 - it will be necessary first of all to realise on said coating a central access opening, in correspondence with a single side of the skein, to place the central hole of the skein itself in communication with the exterior and thereby start extracting the flexible hose or the cable.

**[0022]** In particular this access opening may easily be obtained by widening some segments of the extensible ribbon (N) that wraps the skein itself.

**[0023]** The most important aspect of the invention according to claim 1 is that the container realised with the extensible ribbon is perfectly able to maintain - during the progressive unwinding of the related skein - its compactness and optimal capability to contain and hold all turns.

## Claims

1. Method for packaging a flexible hose or cable wound in a skein of the type comprising successive windings of ribbon (N) wrapping the skein entirely from one point of its circumference to another and from one of its two opposite lateral faces to the other, three of the four sides of each winding lying on a plane which intersects the skein itself offset by a few degrees with respect to the plane of the previous winding, said three sides comprising a first side running across the circumferential periphery of the skein; a second side running across a first lateral face of the skein from one point on its circumference to another; a third side running across the circumferential periphery of the skein, **characterised in that** said ribbon is extensible and that said plane of each successive winding is perpendicular to the two opposite lateral faces of the skein.

2. Method for packaging a flexible hose or cable wound in a skein, according to claim 1, **characterised in that** the said three of the four sides of each successive winding of extensible ribbon (N) lie on planes tangential to an imaginary central hole whose diameter is approximately equal to that of the inlet (B) of the hole of the skein (M).

3. Method for packaging a flexible hose or cable wound in a skein, according to claim 1, **characterised in that** the aforesaid windings of extensible ribbon (N) lie on diametral planes.

4. Method for packaging a flexible hose or cable wound in a skeins, according to any of claims from 1 to 3, **characterised in that** portions of the outer turns of the skein remain uncoated at least in correspondence of the peripheral shoulder of the skein itself.

## Patentansprüche

1. Verfahren zum Verpacken eines zu einer Rolle gewundenen flexiblen Schlauches oder Kabels, von der Art umfassend aufeinanderfolgende Wicklungen eines Bandes (N), das die Rolle vollkommen von einem Punkt ihres Umfangs zu einem anderen und von einer ihrer sich gegenüberliegenden Seitenflächen zu der anderen umhüllt, wobei drei der vier Seiten einer jeden Wicklung auf einer Ebene liegen, welche die Rolle selbst im Verhältnis zu der Ebene der vorangegangenen Wicklung um einige Grade versetzt kreuzt, wobei die genannten drei Seiten eine erste Seite enthalten, die kreuzweise durch den Umfang der Rolle geht; eine zweite Seite, die kreuzweise durch eine erste Seitenfläche der Rolle von einem Punkt ihres Umfangs bis zu dem anderen geht; eine dritte Seite, die kreuzweise durch den Umfang der Rolle geht, **dadurch gekennzeichnet, dass** das genannte Band dehnbar ist und dass die genannte Ebene einer jeden aufeinanderfolgenden Wicklung lotrecht zu den zwei sich gegenüberliegenden Seitenflächen der Rolle verläuft.

2. Verfahren zum Verpacken eines zu einer Rolle gewundenen flexiblen Schlauches oder Kabels nach Patentanspruch 1, **dadurch gekennzeichnet, dass** die genannten drei der vier Seiten einer jeden aufeinanderfolgenden Wicklung des dehnbaren Bandes (N) auf Ebenen tangential zu einer ideellen mittleren Öffnung liegen, deren Durchmesser ungefähr der gleiche ist wie der des Eintritts (B) der Öffnung der Rolle (M).

3. Verfahren zum Verpacken eines zu einer Rolle gewundenen flexiblen Schlauches oder Kabels nach Patentanspruch 1, **dadurch gekennzeichnet, dass** die vorgenannten Wicklungen des dehnbaren Bandes (N) auf diametralen Ebenen liegen.

4. Verfahren zum Verpacken eines zu einer Rolle gewundenen flexiblen Schlauches oder Kabels nach einem beliebigen der Patentansprüche von 1 bis 3, **dadurch gekennzeichnet, dass** die Abschnitte der äusseren Windungen der Rolle wenigstens an der umlaufenden Schulter der Rolle selbst unbedeckt bleiben.

**Revendications**

1. Méthode d'emballage d'un tuyau ou câble flexible enroulé dans un écheveau du type comprenant l'enroulement de spires successives du ruban (N) enveloppant entièrement l'écheveau d'un point à l'autre de sa circonférence et de l'une de ses deux faces opposées à l'autre, trois des quatre côtés de chaque spire reposant sur un plan sécant l'écheveau décalé par rapport au plan de la spire précédente, lesdits trois côtés comprenant un premier côté traversant la périphérie de la circonférence de l'écheveau; un second côté traversant une première face latérale de l'écheveau d'un point de sa circonférence à l'autre; un troisième côté traversant la périphérie de la circonférence de l'écheveau, **caractérisé en ce que** ledit ruban est extensible et que ledit plan de chaque spire est perpendiculaire aux deux faces latérales opposées de l'écheveau.

2. Méthode d'emballage d'un tuyau ou câble flexible enroulé dans un écheveau selon la revendication 1, **caractérisée en ce que** lesdits trois des quatre côtés de chaque spire successive de ruban extensible (N) reposent sur des plans tangentiels à un orifice central imaginaire dont le diamètre est approximativement égal à celui de l'embouchure (B) de l'orifice de l'écheveau (M).

3. Méthode d'emballage d'un tuyau ou câble flexible enroulé dans un écheveau selon la revendication 1, **caractérisée en ce que** lesdites spires de ruban extensible (N) reposent sur des plans diamétraux.

4. Méthode d'emballage d'un tuyau ou câble flexible enroulé dans un écheveau selon n'importe laquelle des revendications 1 à 3, **caractérisée en ce que** des portions des spires externes de l'écheveau restent découvertes au moins en correspondance de l'arrête périphérique de l'écheveau.

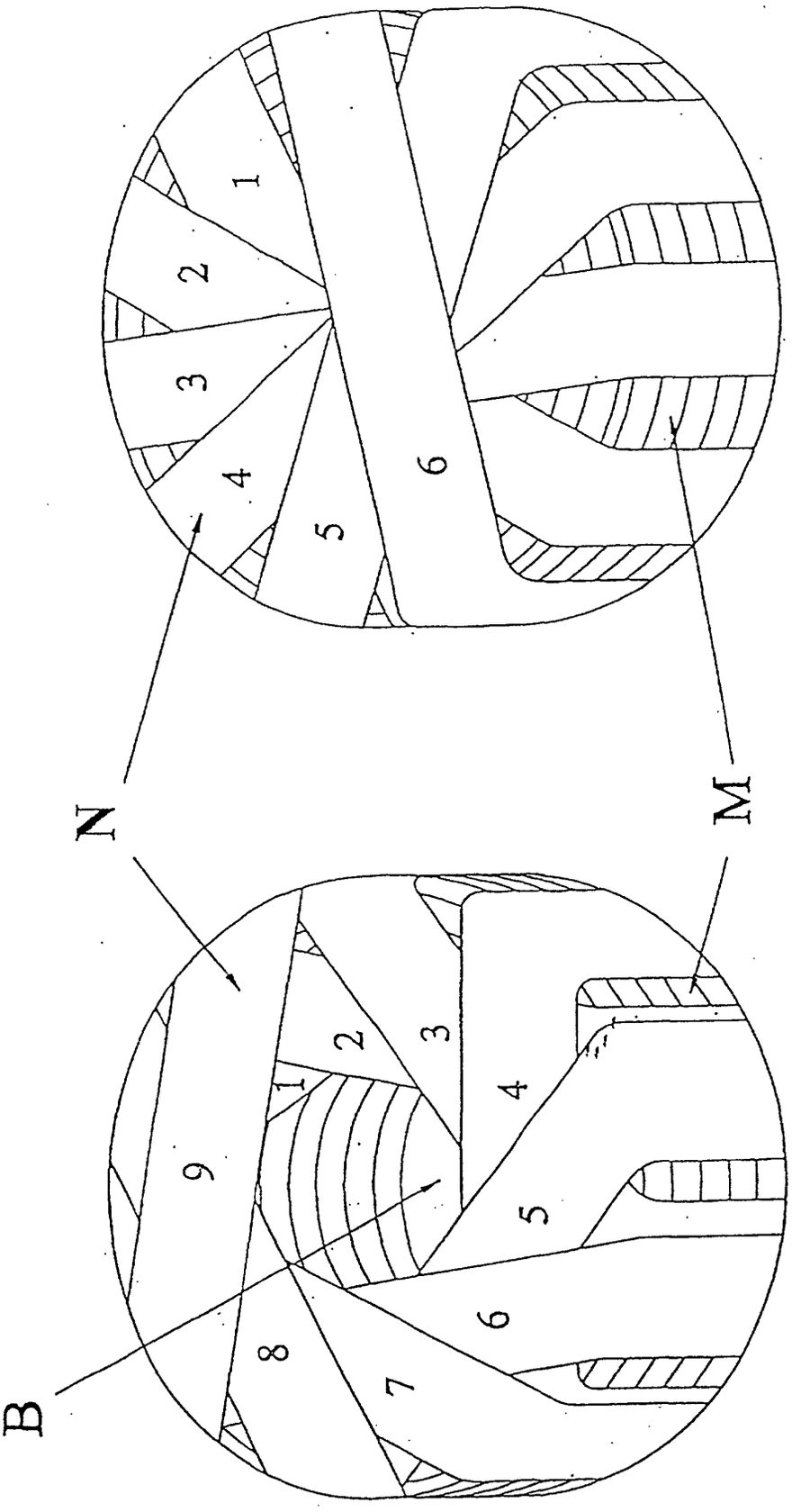


FIG. 2




FIG. 1