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(54) **REEL CORE**

(57) Reel core, consisting of a tubular body (1) with a low resistance to abrasion, open at both ends, with an inner surface (11) and an outer surface (12). The ends of the tubular body (1) feature grooves (13) cut into the inner surface designed for the push-fit of tube protectors (2) for the ends of the tubular body (1). These tube protectors (2) are manufactured from an abrasion-resistant material and feature an inner surface (21) that sits flush with the inner surface (12) of the tubular body, an exterior flange (22) which covers the front of the end of the body (1) with an outer surface (23) that is flush with the outer surface of the tubular body (1) of the reel core.

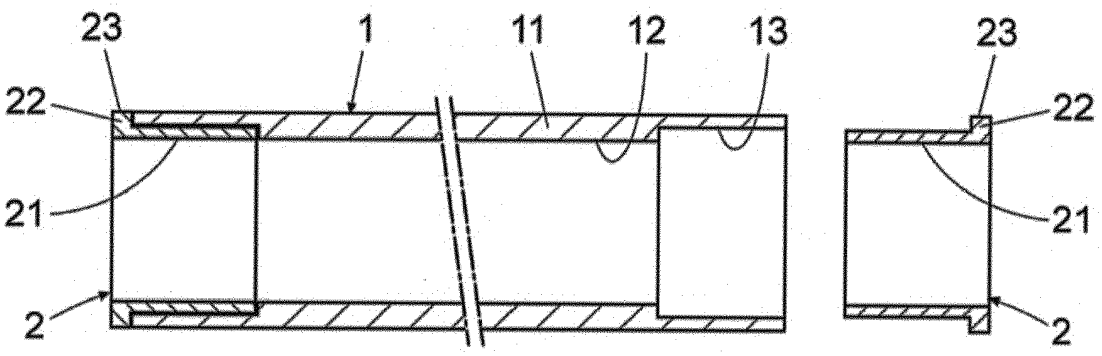

Fig. 2

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Description

Object of the invention.

[0001] The object of the invention is a reel core, consisting of a cylindrical tubular body on which the product in question can be spooled.

[0002] The core's design is aimed to strengthen its ends to prevent wear and tear during the gripping and support of the core or the spool formed around it.

Field of application of the invention.

[0003] This invention is designed for use in the sector dedicated to the manufacture of reel cores for a range of different products.

State of the art.

[0004] Reels of a wide range of materials, for example sheets of tissue or cellulose derivatives, are rolled onto a cylindrical tube core, which as well as acting as a support for the reel, ensures an axial passage for subsequent grip and handling.

[0005] Cores are currently made from materials with a low resistance to abrasion, for example cardboard or fibreglass, which have the disadvantage that they begin to shred and become worn at the ends as they are repeatedly placed on machinery used to grip, handle and move reels.

[0006] This represents a problem for cores that are repeatedly used in factories for the spooling and unspooling of materials and the processing of these materials until the final product. A typical example here is the manufacture of rolls of paper made by making a series of lengthwise and parallel cuts to a sheet of material of greater width fed from a mother reel of the material.

[0007] The owner of the invention is not aware of the existence of any background regarding reel cores that have similar technical, structural and constituent characteristics to those of this invention which would also provide a solution to the problem in hand.

Description of the invention

[0008] The reel core that is the object of this invention consists of a tube body with a low resistance to abrasion, open at both ends, with an inner and outer surface.

[0009] A particular feature of this core is that the two ends feature grooves into which tube protectors slot, made from a material that is resistant to abrasion, with an inner surface that is flush with the inner surface of the tube body of the core and flanged ends that cover the ends of the tube.

[0010] The flanged ends of the protectors are flush with the outer surface of the tube body of the reel core.

[0011] The tube body may be made of cardboard, glass fibre or any other material with a low resistance to abrasion, which may deteriorate with certain ease at the ends of the core.

[0012] These tube protectors are made from a polyurethane elastomer which has a high resistance to abrasion.

[0013] With the characteristics set out above, the tube protectors cover the inside and the front of the ends of the tube body of the core, increasing its strength and extending its service life.

[0014] The characteristics of the invention can be understood better with the help of the drawing on the final page of this description.

Description of the drawings

[0015] To complement the description and offer help in the understanding of the characteristics of the invention, a set of technical drawings accompany this report, which for purely illustrative and non-limiting purposes, show the following:

- Figure 1 shows a perspective view of a reel core, as per the invention.
- Figure 2 shows a lengthwise cross section of the same reel core with one of the tube protectors inserted into the end of the reel core tube, with the other protector unattached and shown in line with the other end of the tube.

Preferred form of the invention

[0016] In the example shown in the accompanying drawings, the reel core consists of: a tube body (1) and tube protectors (2) for the ends of the core.

[0017] The tube body (1), in this case, made from glass fibre, is open at the ends and shows its outer surface (11) and its inner surface (12). The inside of the tube body (1) features grooves (13) into which the tube protectors (2) slot.

[0018] The tube protectors (2) are manufactured from an abrasion-resistant material, in this particular case, a polyurethane elastomer. When put in place, the inner surface (21) sits flush with the inner surface (12) of the tube body (1).

[0019] These tube protectors (2) also feature an outer flange (22) that covers the tube end (1), protecting it from possible frontal impact which often occurs when attaching reels to a number of machines.

[0020] The flanged ends (22) of the tube protectors (2) have an outer surface (23) which, when in position, lie flush with the outer surface (11) of the tube body (1) of the reel core.

[0021] The tube protectors (2) can be attached to the end of the tube body (1) by simple push fit, with adhesive or via mechanical means.

[0022] Having described the nature of the invention and its preferred form, it is stated that the materials, form,

size and the arrangement of the invention's elements as described herein may be modified, where this does not represent an alteration of the essential characteristics of the invention as claimed below.

Claims

1. Reel core, consisting of a tubular body (1) made from a material with a low resistance to abrasion, open at both ends, with an outer surface (11) and an inner surface (12), which is **characterised by** its tubular body (1) the ends of which feature grooves (13) cut into the inner surface designed for the push-fit of tube protectors (2) for the ends of the tubular body (1). These tube protectors (2) are manufactured from an abrasion-resistant material and feature an inner surface (21) that sits flush with the inner surface (12) of the tubular body, an exterior flange (22) which covers the front of the end of the body (1) with an outer surface (23) that is flush with the outer surface (11) of the reel core's tubular body (1).

2. Reel core, based on Claim 1, **characterised by** the tube protectors that are manufactured from a polyurethane polymer.

3. Reel core, based on Claim 1, **characterised by** the tube protectors (2) that are attached to the end of the tube body (1) by simple push fit, with adhesive or via mechanical means.

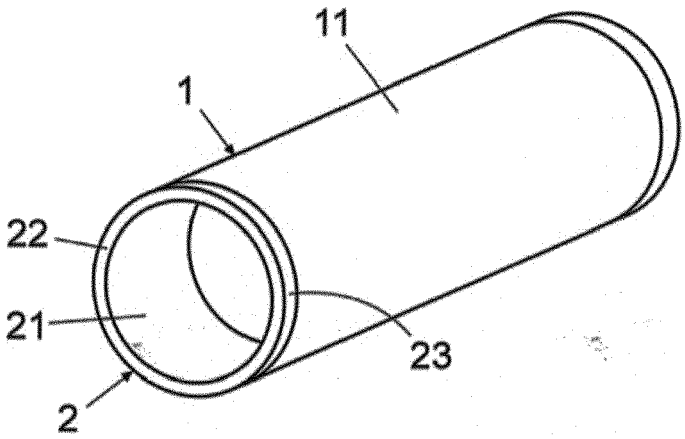

Fig. 1

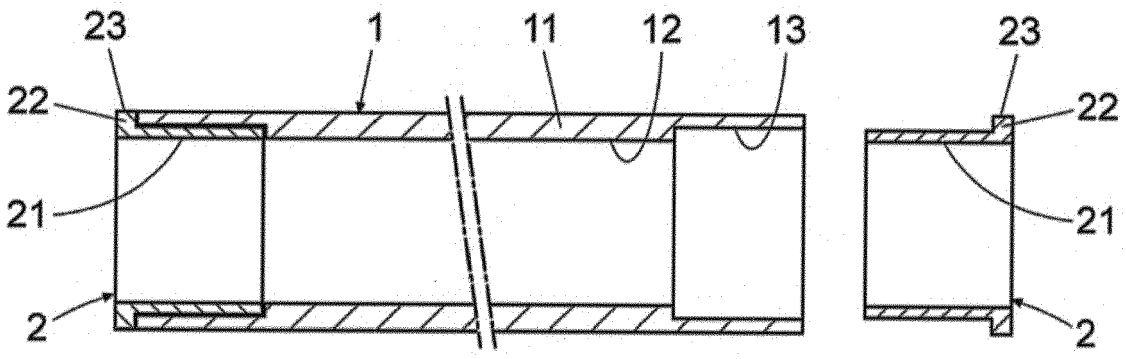

Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 18 00 0187

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	DE 20 2009 016378 U1 (PAUL SAUER GMBH & CO WALZENFAB [DE]) 11 March 2010 (2010-03-11) * paragraphs [0016], [0017], [0020], [0026], [0033], [0036]; figure 1 *	1-3	INV. B65H75/10 B65H75/18
X	US 5 441 780 A (BUSHELL VICTOR [US] ET AL) 15 August 1995 (1995-08-15) * column 2, lines 6-22; figures 1-5 *	1,3	
X	US 411 140 A (GEORGE B. FARRINGTON AND NELSON CURTIS) 17 September 1889 (1889-09-17) * page 1, lines 70-86; figure 2 *	1,3	

TECHNICAL FIELDS SEARCHED (IPC)

B65H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	31 August 2018	Pussemier, Bart

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 18 00 0187

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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31-08-2018

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 202009016378 U1	11-03-2010	NONE	
US 5441780 A	15-08-1995	NONE	
US 411140 A	17-09-1889	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82