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(54) **Method for packaging roll of paper and the packaging box to be applied therewith**

(57) The present invention relates to a method for packaging a roll of paper (11) using a sheet of packaging material (2) whereby in the sheet of packaging material are applied a number of creases or folding lines (3) running parallel to one another and bordering neighbouring sheet parts (4-10), and the sheet of packaging material is folded around the creases or folding lines in order to

form a polygonal packaging box for the paper roll, this packaging box being formed by the sheet parts enclosing an angle with one another, while partitions (13) are fitted inside the packaging box near the ends of the packaging box. The present invention also relates to the packaging box and the sheets of packaging material to be used for making the packaging box and the enclosing member.

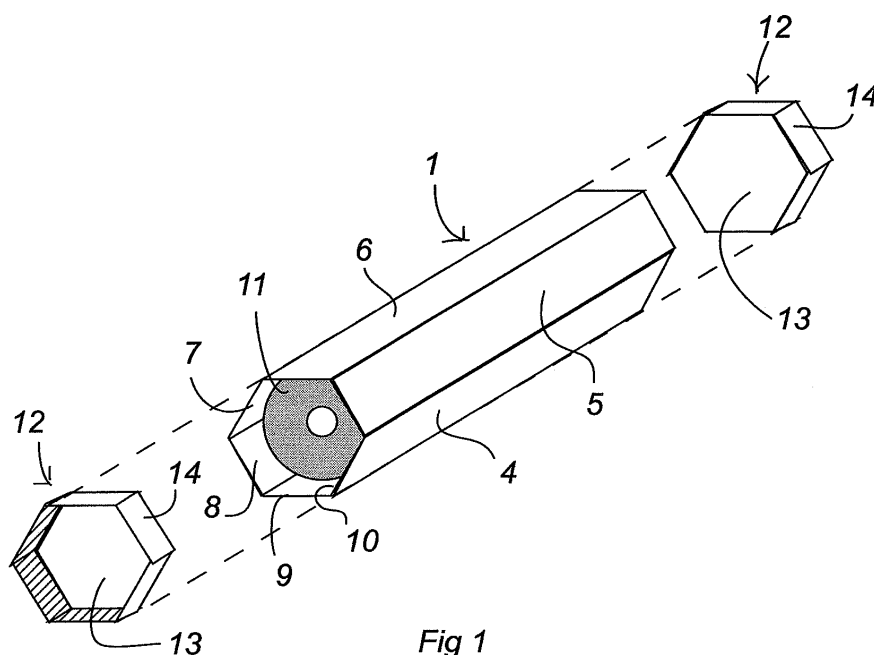


Fig 1

Description

[0001] The present invention relates to a method for packaging a roll of paper using a sheet of packaging material whereby in the sheet of packaging material are applied a number of creases or folding lines running parallel to one another and bordering neighbouring sheet parts, and the sheet of packaging material is folded around the creases or folding lines in order to form a polygonal packaging box for the paper roll, this packaging box being formed by sheet parts enclosing an angle with one another, while partitions are fitted inside the packaging box near the ends of the packaging box. The present invention further relates to the packaging box thus created and the sheets to be used therewith.

[0002] A method of this kind can be derived from American patent 5,941,476, whereby a number of rolls are enclosed between two round disks interlinked by means of a centrally positioned linking rod and the round disks have their outer circumference touching the inner sides of the sheet parts. Furthermore, partitions, formed by flat disks and which are provided with protuberances that link into notches applied to the sheet parts, are fitted near the ends. This leads to a complicated construction, while the link between the partitions and the sheet parts of the packaging is weak.

[0003] The aim of the present invention is to obtain a method with which the disadvantages associated with the known method can be eliminated.

[0004] According to the present invention, this can be achieved by fitting the packaging box tightly around the roll to be accepted in the packaging by fitting the sheet of packaging material directly tightly around the roll while folding around the creases or folding lines whereby the sheet of packaging material has been measured such that the packaging box thus formed around the roll protrudes on both ends of the roll accepted in the packaging box beyond the roll accepted in the packaging box, and a one-piece enclosing member formed by a sheet of packaging material is fitted inside each of the ends of the packaging box, this enclosing member being constructed from a partition touching an end of a roll fitted inside the packaging box, the dimension of this partition corresponding at least practically with the internal polygonal cross-section of the packaging box formed around the roll, and from edge parts forming a unit with the partition, bent round in respect of the partition, which are touching the inner sides of the sheet parts of the packaging box, the sheet parts enclosing an angle with one another. By applying the method according to the present invention, a sturdy enclosure of the roll inside the packaging box can be achieved without using any further tools. Additionally, a sturdy construction of the ends of the packaging box is achieved through the partitions fitted inside the ends of the packaging box together with the bent edge parts forming a whole therewith, so that damage of the roll accepted inside the packaging box as a result of impact received against the ends of the packaging box can

be prevented. The sturdily embodied ends of the packaging box can also be utilised for grabbing the packaging box manually or through mechanical transport means, with a view to relocating the packaging box and its contents.

[0005] The bent edge parts of the enclosing members are preferably glued to the inner sides of the sheet parts of the packaging box, the sheet parts enclosing an angle with one another. It is also preferable for the packaging box to be given a hexagonal cross-section while folding the packaging material around the roll. Particularly cardboard is used as packaging material and the packaging box is formed such that the ends of the packaging box protrude by between 0.5-5cm beyond the ends of the roll surrounded by the packaging box.

[0006] As such, an advantage of the method according to the present invention is that it is no longer necessary to have a plurality of different broadsheets in stock in order to suitably package one or more rolls of paper. It is only necessary to have packaging material in sheet form in stock from which are created upon demand broadsheets of such dimensions that one or more rolls of paper can be packaged inside the packaging box formed from the broadsheet. This will provide a considerable saving in material costs for the packaging material in stock and more flexibility in the dimensions of the rolls of paper when it is desirable that these are packaged as tightly as possible inside the packaging box according to the present invention.

[0007] As can be seen, a box for accepting products is known from American patent 3,314,531, which is constructed from two sliding box parts that are hexagonal in cross-section. A holder accepting the products to be packaged is placed inside one of these box parts, following which the other box part is slid over the box part containing the holder accepting the products. Each box part is provided, near an end, with a partition with bent edges accepted in that end, which are connected to the inner side of the box part in question. However, this known packaging also has a complicated construction using a particularly large amount of packaging material.

[0008] The present invention will be further illustrated by the accompanying figures.

[0009] Figure 1 shows a perspective view of an embodiment of a packaging box according to the present invention indicating components of the packaging box at a distance from one another.

[0010] Figure 2 shows a view of a broadsheet from which the packaging box shown in Figure 1 can be created.

[0011] Figures 3 and 4 show schematic views of other possible embodiments of packaging boxes according to the present invention.

[0012] The packaging box 1 shown in Figure 1 has a hexagonal cross-section. The packaging box is formed by a sheet of packaging material 2 shown in Figure 2, which may for example consist of cardboard or a suitable plastic material.

[0013] The sheet of packaging material 2 is divided into seven neighbouring sheet parts 4-10 by means of a number of creases or folding lines 3 applied to the sheet that run parallel to one another. In order to form the packaging box 1 shown in Figure 1, the sheet parts 4-10 are folded around the creases or folding lines 3 in respect of one another in the hexagonal shape shown in Figure 1, whereby the sheet part 4 ends up touching the outer side of the sheet part 10 and is attached thereto, for example by gluing. The packaging box 1 is formed such that a paper roll 11 can be accepted tightly inside the packaging box 1, because the paper roll touches against the inner sides of the sheet parts 5-10.

[0014] As will also be clear from Figure 1, the packaging box 1 is formed such that the ends of the packaging box protrude by a certain distance of 0.5-5 for example, beyond the ends of the paper roll 11. The ends of the packaging box are thus enclosed by means of enclosing members 12, which are each constructed from a partition 13 and edge parts 14 joining thereto, which are bent round in relation to the partition 13 and which form a whole with the partition, which are positioned at right angles to the partition 13. The shape of the partition 13 is adjusted to the internal shape of the packaging box 1 that is hexagonal in cross-section, so that the partition 13 can be fitted tightly inside the inner area of the packaging box 1. Each enclosing member 12 is fitted inside the box such that the partition 13 is touching a relevant end of the paper roll 11 and the bent edges 14 extend from the partition 13 towards the outer end of the packaging box. The bent edges 14 are connected to the inner sides of the sheet parts 5-10 by suitable adhesives. It will be clear that a sturdy enclosure of the paper roll 11 inside the packaging box 1 can thus be achieved, whereby the packaging box can easily be folded from a broadsheet 2 cut to size.

[0015] By fitting the above-described enclosing members 12 inside the ends of the packaging box 1, a functional reinforcement of the ends of the packaging box 1 protruding beyond the paper roll 11 is achieved too, partly by the double-layer embodiment of the ends of the packaging box protruding beyond the roll 11 as a result of fitting the bent edge parts 14 to the inner sides of the sheet parts 5-10. These sturdy ends prevent any undesirable damage to the ends of the paper roll 1 by impact exerted upon the ends of the packaging. Additionally, reinforced ends of this type lend themselves well for grabbing the packaging box, either manually or by means of mechanical tools with a view of relocating the packaging box, without risking any damage to the packaging box.

[0016] Figure 3 shows a schematic view of an embodiment of a packaging box 15 used for accepting two paper rolls 16. It will be clear that a packaging box 15 of this type can be constructed in a similar way as the packaging box 1 described above and shown in Figure 1, whereby, however, sheet parts of various widths are formed in the packaging material in sheet form, from which the packaging box 15 is folded, by means of the creases or folding lines, as will be clear from Figure 3.

[0017] This also applies to the packaging box 17 shown in Figure 4 which is intended for accepting three paper rolls 18. Here too, the packaging box 17 will be formed by a packaging material in sheet form in which creases have been applied such that sheet parts of various widths are formed.

[0018] It will be clear that within the spirit and protection scope of the present invention, variations and/or additions can be applied to the above-described embodiment of the packaging box. For example, it will be possible to provide the packaging box with an additional handle which can be glued to or formed from the same sheet material as the rest of the packaging.

Claims

1. A method for packaging a roll of paper using a sheet of packaging material whereby in the sheet of packaging material are applied a number of creases or folding lines running parallel to one another and bordering neighbouring sheet parts, and the sheet of packaging material is folded around the creases or folding lines in order to form a polygonal packaging box for the paper roll, this packaging box being formed by the sheet parts enclosing an angle with one another, while partitions are fitted inside the packaging box near the ends of the packaging box **characterised by** the packaging box being fitted tightly around the roll to be accepted in the packaging by fitting the sheet of packaging material directly tightly around the roll while folding around the creases or folding lines whereby the sheet of packaging material has been measured such that the packaging box thus formed around the roll protrudes on both ends of the roll accepted in the packaging box beyond the roll accepted in the packaging box, and a one-piece enclosing member formed by a sheet of packaging material is fitted inside each of the ends of the packaging box, this enclosing member being constructed from a partition touching an end of a roll fitted inside the packaging box, the dimension of this partition corresponding at least practically with the internal polygonal cross-section of the packaging box formed around the roll, and from edge parts forming a unit with the partition, bent round in respect of the partition, which are touching the inner sides of the sheet parts of the packaging box, the sheet parts enclosing an angle with one another.
2. A method according to claim 1, **characterised by** the bent edge parts of the enclosing members being glued to the inner sides of the sheet parts of the packaging box, the sheet parts enclosing an angle with one another.
3. A method according to claim 1 or 2, **characterised by** the packaging box being given a hexagonal

cross-section while folding the packaging material around the roll.

4. A method according to any one of the preceding claims, **characterised by** cardboard being used as packaging material. 5
5. A method according to any one of the preceding claims, **characterised by** the packaging box being formed such that the ends of the packaging box protrude by between 0.5-5cm beyond the ends of the roll surrounded by the packaging box. 10
6. A packaging box created using a method according to any one of the preceding claims. 15
7. A sheet of packaging material used for creating a packaging box according to claim 6.
8. A sheet of packaging material used for creating an enclosing member to be applied in the method according to any one of the preceding claims. 20

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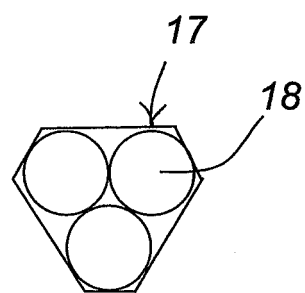
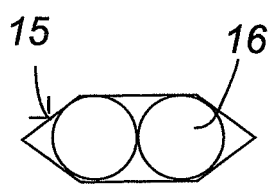
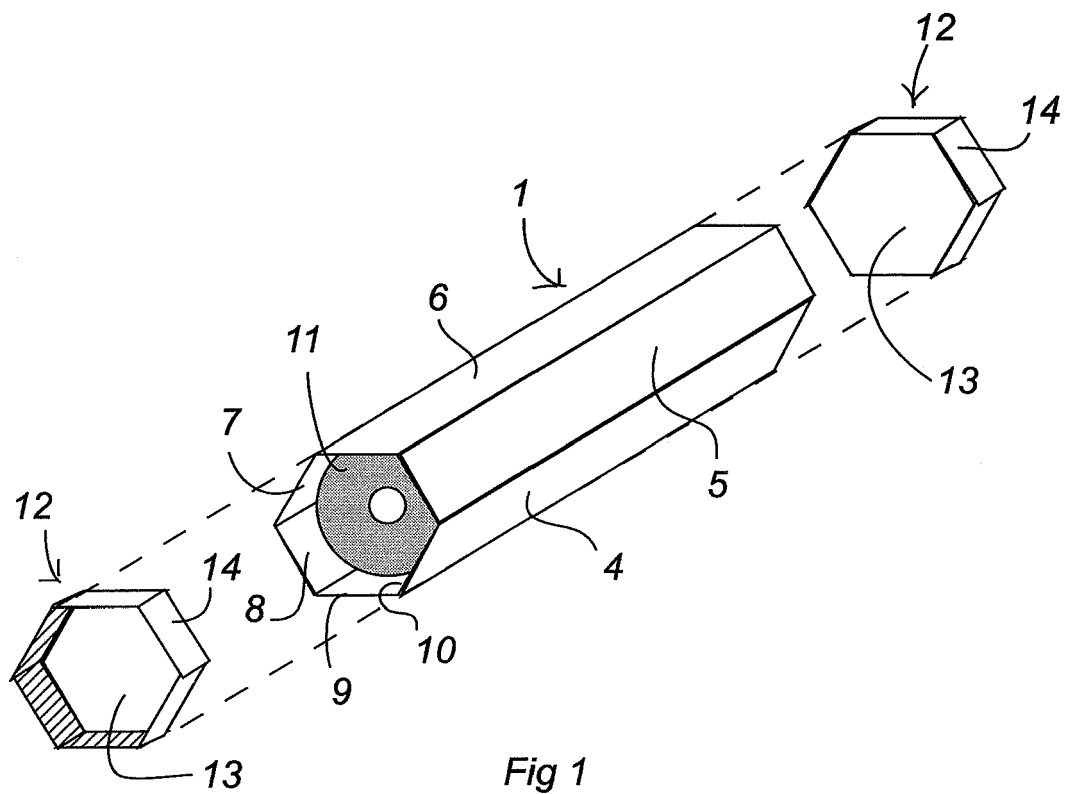
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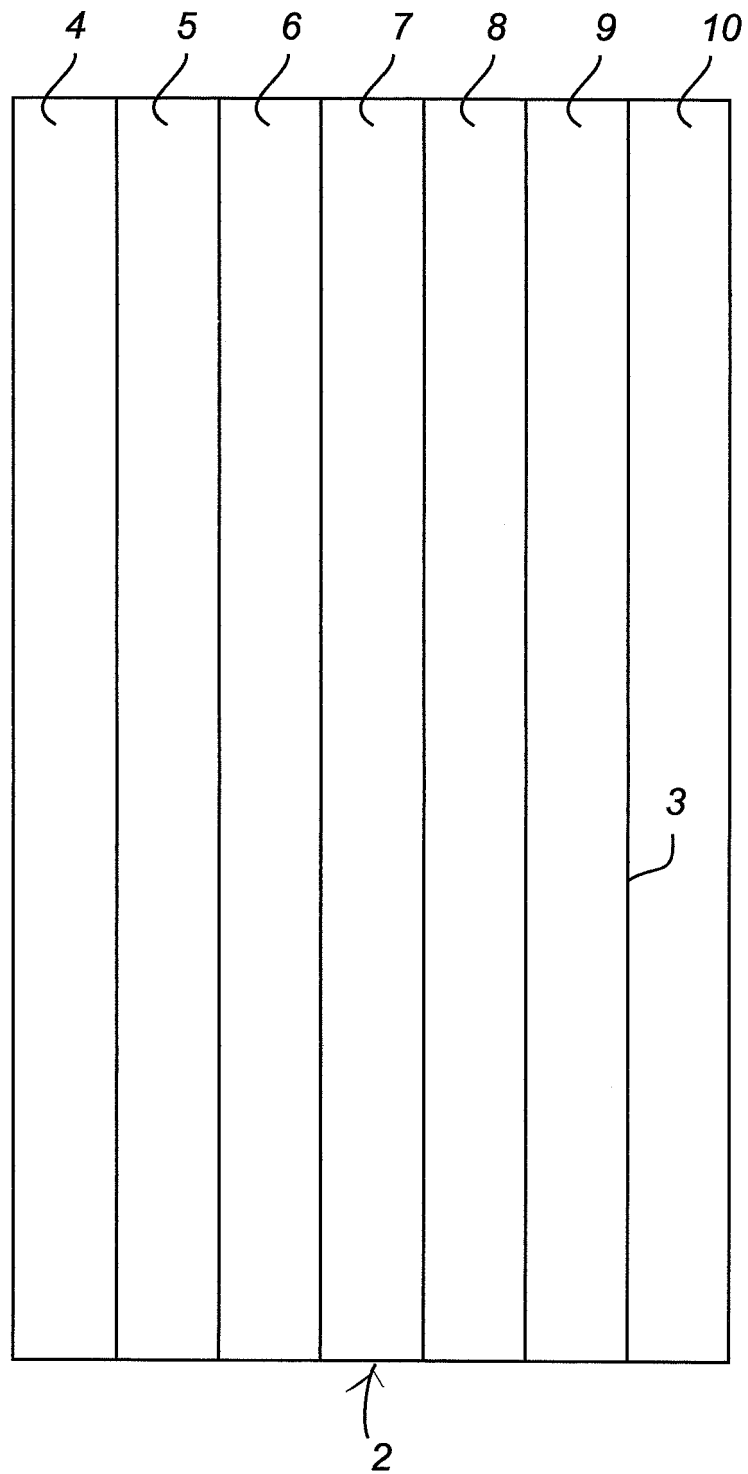


Fig 2



EUROPEAN SEARCH REPORT

Application Number
EP 08 16 9966

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	WO 2006/086425 A (SONOCO DEV INC [US]; JOHANSON JAMES E [US]; LAGACE CHAD [US]; ANTAL KE) 17 August 2006 (2006-08-17) * paragraph [0003] * -----	6,7	INV. B65D5/02 B65D5/14
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A	-----	1	
A	DE 91 09 325 U1 (PANNENBECKER, HEINRICH, 5300 BONN, DE) 12 December 1991 (1991-12-12) * figures * -----	1	
			TECHNICAL FIELDS SEARCHED (IPC)
			B65D
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 12 March 2009	Examiner Bridault, Alain
<p>CATEGORY OF CITED DOCUMENTS</p> <p>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 P : intermediate document</p> <p>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</p> <p>& : member of the same patent family, corresponding document</p>			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 08 16 9966

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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12-03-2009

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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REFERENCES CITED IN THE DESCRIPTION

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