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Remarks:

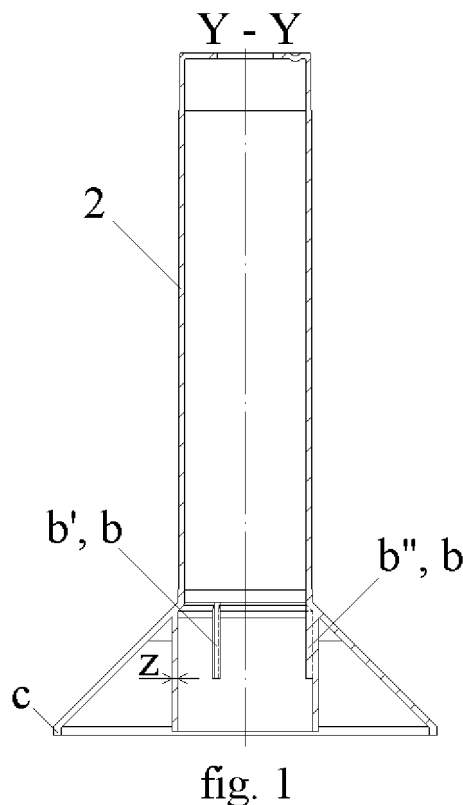
This application was filed on 06 - 11 - 2007 as a divisional application to the application mentioned under INID code 62.

(54) **Support for sewing thread**

(57) The invention refers to a support for sewing thread, destined for special sewing machines, for winding of sewing thread on the winding machines, for depositing and transporting as special package for commercialization of thread.

The solved technical problem consists in the realization of a support which warrants a more secure automatic feeding in the winding machine by preventing the undesirable pressing of the superposed support in the other support.

The support for sewing thread are provided three interior vertical ribs (**b**), theoretical identics, placed between them at an angle of 120°, each rib (**b**) being a prominence from the cylindrical interior wall which from the direction of frontal view of the rib (**b**) has the form of a longish rectangle (**b'**), with long sides parallel with the longitudinal axis of support (**2**), and in the longitudinal section has the form of a rectangle (**b''**).



## Description

**[0001]** The invention refers to a support for sewing thread, having a form of a tubular cylinder, with base having the shape of a truncated cone, destined for winding of sewing thread on different types of winding machines, spoolers, with automatic and / or manual feeding, for depositing and transporting as special package for commercialization of thread, with or without thread wrapped up on it, as well as for utilization on the special sewing machines from the field of the textile industry.

**[0002]** According to drawings presented in patent US 4106723, are known tubular supports for textile threads, in the shape of a cylinder, with base having the shape of a truncated cone, which are known too under denomination of spools for holding thread.

**[0003]** These tubular supports have disadvantage that they are not equipped with elements that would provide an easy automatic feeding of the supports, superposed in handy positions in the winding machine, as well as an ordered packing on several rows, in boxes, by superposition of supports.

**[0004]** The technical problem, solved by the invention, consists in the realization of a support for sewing thread that warrants a more secure automatic feeding in the winding machine by preventing the undesirable pressing of the superposed support in the other support, assuring suitable superposition of supports, with or without thread wrapped up on them and protecting the exterior helical thread, wrapped up on support in the phase of depositing and transportation.

**[0005]** The support for sewing thread, according to invention, solves this technical problem and eliminates the mentioned disadvantage that the tubular support for sewing thread, having a cylindrical or almost cylindrical wrapping surface, with base having the shape of a truncated cone, with the view of superposition (overlapping) of the supports, wrapped with sewing thread or no, in the inferior zone of the interior wall of a cylindrical support are provided three interior vertical ribs, theoretical identics, which in case of overlapping of supports impede the advance of the support in the other support, placed between them at an angle of 120°, each rib being a prominence from the cylindrical interior wall which from the direction of frontal view of the rib has the form of a longish rectangle, with long sides parallel with the longitudinal axis of support, and in the longitudinal section has the form of a rectangle, the length of ribs being dimensioned in such a way that the length of the superior portion of the support for sewing thread, remained free after wrapping of the sewing thread, is a little greater than the length, measured in the direction of longitudinal axis of support, from the bottom ends of the ribs till the end of a ring-shaped portion from inferior zone of the base of support.

**[0006]** The application of invention conducts to the following advantages:

- due to possibility of overlapping of several supports,

one over one, containing or not the thread wrapped up on them, by reduction of the space occupied by the supports, and by easy and handy positioning of them, are improved the automatic winding conditions, as well as the conditions of packing, of depositing and of transportation;

- by avoidance of jamming of supports in case of automatic feeding in the winding machine, are eliminated the rejects obtained for this reason, reducing in this way the damages of fabrication and increasing the productivity of winding;
- due to simplicity, the presented solution can be easily adapted almost at all variants of dimensions and shapes from the family of supports, utilized on different types of winding machines with automatic and / or manual feeding, as well as on different types of special sewing machines with automatic and / or manual feeding.

**[0007]** In continuation is presented one example of realization of the support for sewing thread, according to invention, the presentation being upheld by figures 1, 2, 3, 4 and 5, which represent:

- fig. 1, longitudinal section, from a plane Y-Y of fig. 2, of the support for sewing thread;
- fig. 2, bottom view of the support for sewing thread;
- fig. 3, longitudinal section of two superposed supports, which presents schematic also the thread wrapped up on the two supports;
- fig. 4, longitudinal section of four supports, superposed and situated closely, one by one, which presents schematic also the thread wrapped up on each support;
- fig. 5, photographic view of the inferior portion of a support and of the superior portion of another support, before superposing.

**[0008]** The support for sewing thread, with base having the shape of a truncated cone and with cylindrical or almost cylindrical wrapping surface, according to example of realization, consists in that, with the view of overlapping of supports, with or without sewing thread wrapped on them, in the inferior zone of the interior wall of a cylindrical support **2** (fig. 1, fig. 2) are provided three interior vertical ribs **b**, theoretical identics, which in case of overlapping of supports impede the advance of the support in the other support, placed between them at an angle of 120°, each rib **b** being a prominence from the cylindrical interior wall which from the direction of frontal view of the rib **b** has the form of a longish rectangle **b'**, with long sides parallel with the longitudinal axis of support **2**, and in the longitudinal section has the form of a rectangle **b''**, having the little side equal with  $v + 0.6z$  (that is:  $v$  plus (0.6 multiplied by  $z$ )), where:

- $v$  represents the transversal play between interior wall of inferior zone of the top support and exterior

wall of superior zone of the bottom support (fig. 3), which, with the view of avoidance of jamming of supports overlapped because of some technological deviations of the concentricity, has the value of 0.6 mm (nought point six of a millimetre); and

- z represents the thickness of the support **2** (fig. 1), measured at the base of the ribs **b**, having usually the value of 0.9 mm (nought point nine of a millimetre).

**[0009]** The length of ribs **b** is dimensioned in such a way that the length of the superior portion of the support **2** for sewing thread, remained free after wrapping of the sewing thread, is a little greater, with 0.8 mm (nought point eight of a millimetre), than the length (fig. 3), measured in the direction of longitudinal axis of support **2**, from the bottom ends of the ribs **b** till the inferior base of support, that is till the end of a ring-shaped portion **c** from inferior zone of the base of support **2**.

**[0010]** In case that the diameter of the volume of thread wrapped up is smaller than the diameter of the ring-shaped portion **c** from the zone of base of support **2**, by putting of the supports **2**, one above one and one beside one (fig. 4), the exterior helical thread, wrapped up on support, is protected against deterioration in the phase of depositing and transportation, as well as in different phases of automatic feeding of the supports in the winding machine, because it is not touched by the thread of neighbouring support, although the supports are positioned, one beside one, closely enough.

**[0011]** In order to assure in the winding phase a good adhering of the thread and a uniform placing of the thread on the surface of support, each support has a surface, processed by reticulating (randalieren), with small dents, having a form of small single or double prominences, or a surface striated in relief, in a form of helical spiral with very small step, in depth of 0.1 mm.

**[0012]** The supports for sewing thread, provided with the interior ribs **b**, are realized with the help of some machines and moulds for plastics mass injection from light and resistant mass plastics, as for example the family of polypropylenes.

**[0013]** In addition to the solutions presented by this invention, also the other variants of dimension and shape of the supports for different types of thread, utilized up to the present at different types of winding machines, can be provided with the interior ribs, according to the present invention. The technology of adaptation consists in fact that on the base of the dimensions of the interior ribs, projected for each case, are modified the depths of the moulds for supports injection by milling or electroerosion of some grooves in a form of longitudinal trenches.

**[0014]** At some supports for sewing thread, which are provided with cylindrical or almost cylindrical ends, the interior longitudinal sides of the ribs can have also a guiding role of the cylindrical superior end of the other support. In these cases, for assuring of a guiding of good quality, at fabrication of the moulds for supports injection are uti-

lized some more precise devices and machines.

List of reference signs used in the figures 1, 2, 3, 4 and 5

#### 5 [0015]

- 2 : support
- b : rib
- b' : rectangle
- 10 b" : rectangle
- c : ring-shaped portion

#### Claims

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1. Support for sewing thread, with base having the shape of a truncated cone and with cylindrical or almost cylindrical wrapping surface, **characterised in that**, with the view of overlapping of supports, with or without sewing thread wrapped on them, in the inferior zone of the interior wall of a cylindrical support (2) are provided three interior vertical ribs (b), theoretical identics, which in case of overlapping of supports impede the advance of the support in the other support, placed between them at an angle of 120°, each rib (**b**) being a prominence from the cylindrical interior wall which from the direction of frontal view of the rib (b) has the form of a longish rectangle (b'), with long sides parallel with the longitudinal axis of support (2), and in the longitudinal section has the form of a rectangle (b"), having the little side equal with  $0.6 \text{ mm} + 0.6z$ , where z represents the thickness of the support (2), measured at the base of the ribs (b).

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2. Support for sewing thread, according to claim 1, **characterised in that** the length of the superior portion of the support (2) for sewing thread, remained free after wrapping of the sewing thread, is greater with 0.8 mm than the length, measured in the direction of longitudinal axis of support (2), from the bottom ends of the ribs (b) till the end of a ring-shaped portion (c) from inferior zone of the base of support (2).

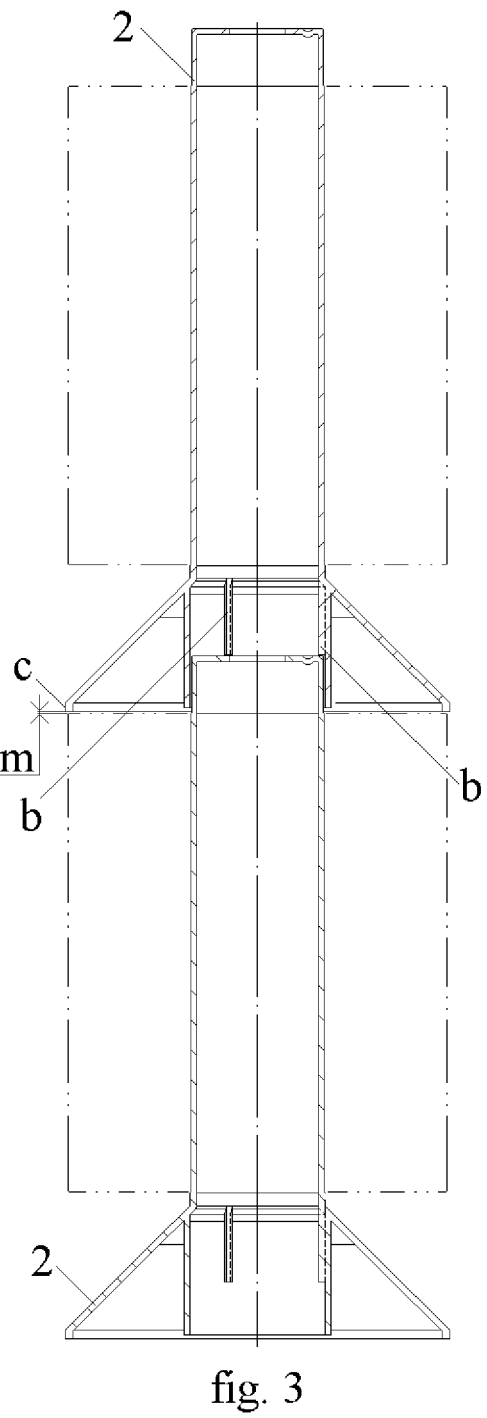
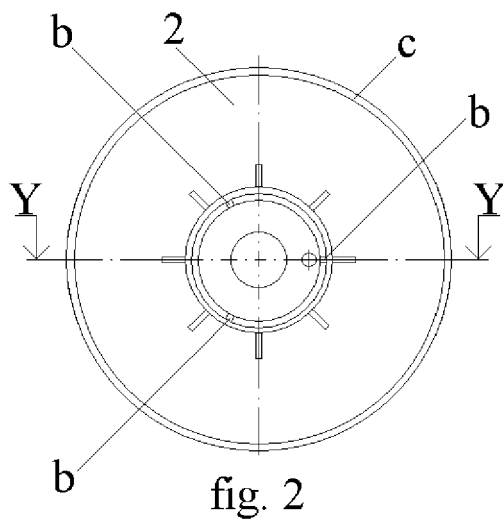
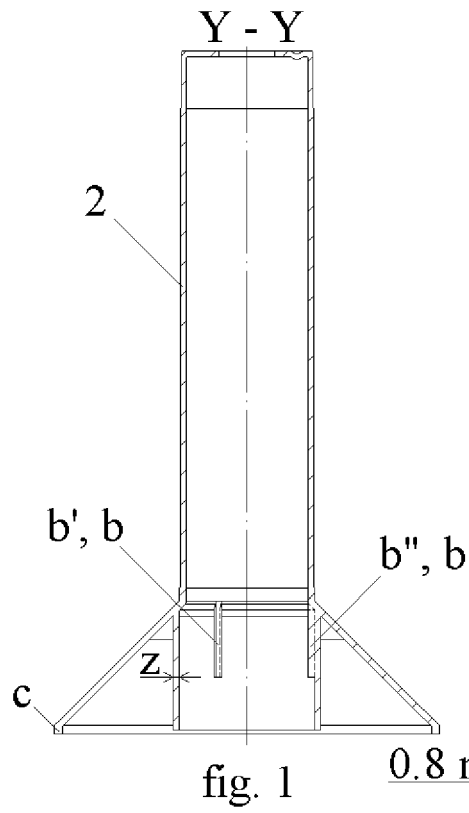
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3. Support for sewing thread, according to claims 1 and 2, **characterised in that**, for the protection of the exterior helical thread, wrapped up on support in the phase of depositing and transportation, as well as in different phases of automatic feeding of the supports in the winding machine, the diameter of the volume of thread wrapped up is smaller than the diameter of the ring-shaped portion (c) from the zone of base of support (2).

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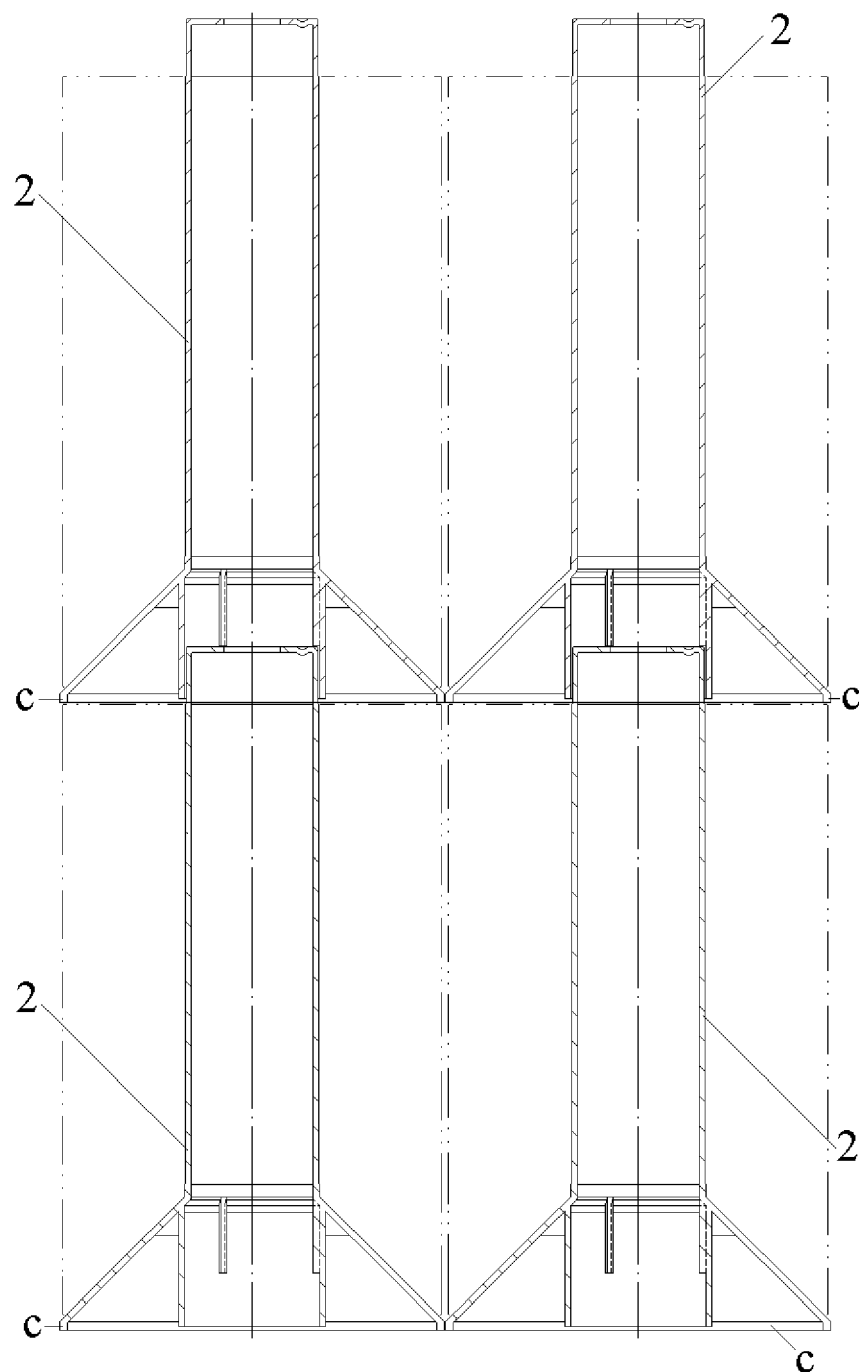


fig. 4

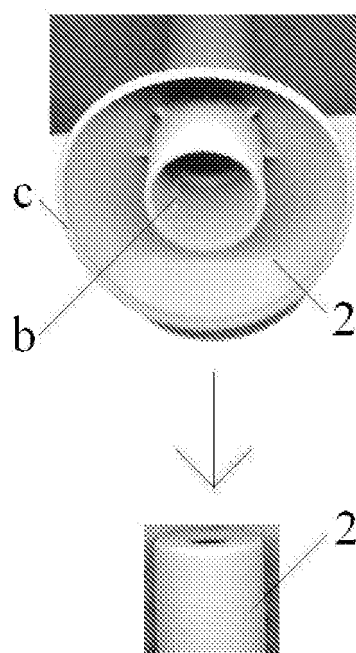


fig. 5



European Patent  
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Application Number  
EP 07 12 0008

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 29 January 2008	Examiner Lemmen, René
<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 ..... &amp; : member of the same patent family, corresponding document</p>			

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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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