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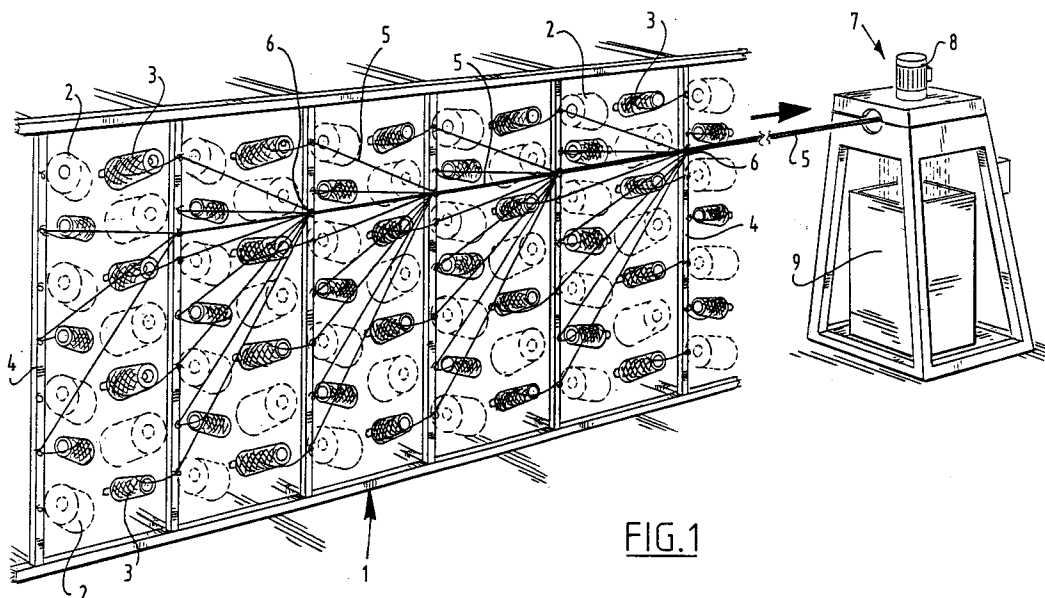
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NL-2517 GK Den Haag (NL)**(54) **A method for unwinding a surplus of thread material from a bobbin during carpet production.**

(57) The invention relates to a method for unwinding a surplus of thread material from a bobbin during carpet production, which bobbin is fixed in a frame for unwinding rolls of thread material for carpet pro-

duction, by transporting the surplus thread to a collecting point via at least one surplus thread guide fixed to the frame.

**FIG.1****EP 0 668 234 A1**

The invention relates to a method for unwinding a surplus of thread material from a bobbin during carpet production, by transporting the surplus thread to a collecting point via at least one surplus thread guide fixed to a frame supporting the bobbin, and a frame therefor.

During carpet production a plurality of threads is processed simultaneously. Depending on the carpet for manufacture these are woollen, cotton or synthetic threads. Because a plurality of threads is processed simultaneously, a plurality of rolls of thread material is required. These rolls are generally placed in a frame whereby the thread is transported from the rolls to a so-called tufting machine. When manufacturing carpet of a plain colour, it is usual to process thread material from the same dye bath, this to prevent possible colour differences in the carpet. As soon as the thread material from a first roll has been almost completely processed - the bobbin of the roll is then thus almost empty - a thread end of a new roll is fastened to the almost completely processed thread. The new roll is also suspended in the frame, generally adjacently of the roll of thread material to which the new thread is fastened. In order to now prevent colour differences in the carpet, each thread is severed so that each outer end can be joined to a new thread. As soon as a first roll of thread material is used up, all other rolls, even if they are not yet completely empty, are thus replaced by new rolls. Partly because the threads on the rolls are not of exactly the same length, there are practically empty bobbins remaining, but there are also bobbins still having a considerable quantity of surplus thread. All the bobbins, also those with surplus thread, are taken out of the frame and replaced by new rolls of thread material so that the above described process can take place again after a time. The bobbins with surplus thread are now disposed of as waste or the surplus thread is removed from each one separately so that it can be re-used. With the increasing cost of waste removal it is important to separate waste into separate components, so that these can be recycled if possible. Cardboard bobbins for example can be reprocessed into recycled paper and the surplus thread can be processed into for instance felt. Up to the present however, separation of the bobbins and the surplus thread has been a labourintensive and thus costly process which is frequently not carried out because of the high cost.

The British patent GB-A-665 252 describes a textile device for winding from a bobbin thread which is for example dirtied or damaged or only a limited length of which still remains on the bobbin. The bobbins containing thread for unwinding can be supported by the textile device in random manner and use can also be made as desired of guides

for guiding the thread for unwinding.

The invention has for its object to provide a method for unwinding surplus thread from a bobbin during carpet production for which very little labour time is required, so that it is economically attractive to mutually separate bobbins and surplus thread.

The invention provides for this purpose a method for unwinding a surplus of thread material from a bobbin during carpet production, by transporting the surplus thread to the collecting point via at least one surplus thread guide fixed to a frame supporting the bobbin. The invention also comprises a frame for use with this method. Using this method it is possible to unwind the bobbin with surplus thread without removing it from the frame after carpet production. It is only necessary to feed the surplus thread through the guide to the collecting point. Once the bobbin has been completely emptied the empty bobbin can be taken out of the frame. This method thus makes it unnecessary to change over the bobbins with surplus thread after they have been used during carpet production. This reduces the number of necessary operations, whereby it becomes more advantageous to unwind the bobbins.

A preferred method is characterized in that the guide guides a plurality of surplus threads. Another preferred method is characterized in that the surplus thread is guided through the guide on the outside of the frame. These minimal adaptations of the frame make it possible to discharge the surplus thread without the possibility of it becoming entangled with thread transported to the tufting machine.

Another preferred method is formed in that the surplus thread is pulled through the guide by a drive placed close to the collecting point. Unwinding of the surplus thread hereby takes up no labour time.

The method is preferably characterized in that the empty bobbins are taken out of the frame after unwinding of the surplus thread, whereafter the vacant positions are filled with new rolls of thread material. The carpet production can thus proceed without being hindered by separation of the bobbins and the surplus thread.

The frame for use with a method as described in the foregoing is characterized in that the frame comprises guides for surplus thread material and comprises at least as many support positions as are required for carpet production. A preferred embodiment of the frame is characterized in that the frame comprises more support positions than are required for carpet production. The frame will have to comprise at least as many support positions as are required for carpet production because otherwise it would not be sufficient for this purpose. If the number of support positions is greater (for example twice the number required for carpet pro-

duction) it is possible to unwind the bobbins without interrupting the carpet production for this purpose. That is to say, both operations can take place simultaneously, wherein the frame then supports both the rolls of thread material and the bobbins with surplus material and guides the surplus thread to the collecting point.

The invention will be further elucidated with reference to the non-limiting embodiments shown in the following figures, wherein:

fig. 1 shows a schematic perspective view of a frame with rolls of thread material, and a device for collecting the surplus thread,

fig. 2 is a perspective view of a surplus thread guide, and

fig. 3 is a perspective view of an alternatively embodied surplus thread guide.

Fig. 1 shows a frame 1 in which are suspended practically full rolls 2 of thread material and bobbins 3 with surplus thread. The thread material for manufacturing carpet is transported, via guides arranged in vertical posts 4 of the frame 1 and not shown in the figure, to a tufting machine, likewise not shown here. The surplus thread 5 unwound from the bobbins 3 is transported to a collecting point 7 via surplus thread guides 6 fixed to the outside of the vertical posts 4 of frame 1. The surplus thread guides 6 can of course also be fixed elsewhere on the frame 1, for example on the inside of the vertical posts 4. The surplus thread 5 is pulled through the surplus thread guides 6 by a drive 8 placed close to the collecting point 7. The surplus thread 5 is then carried to a collecting bin 9. After all the surplus thread 5 is removed from bobbins 3 these latter can be removed from frame 1 and replaced by new, full rolls of thread material.

Fig. 2 shows in detail a perspective view of the surplus thread guide 6 fixed to a vertical post 4 of frame 1. The surplus thread 5 can be carried into the surplus thread guide 6 in simple manner.

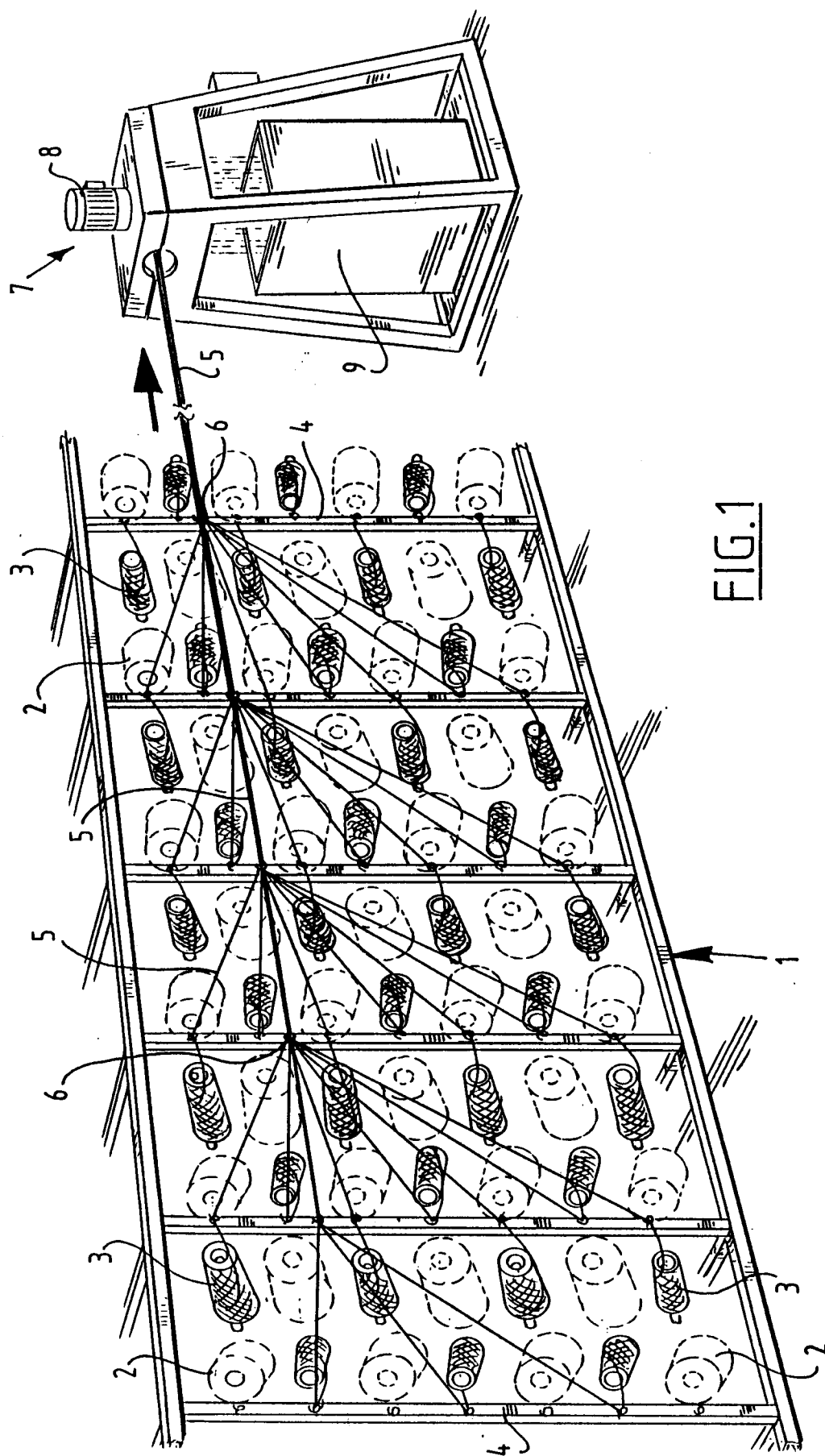
Fig. 3 shows a detailed perspective view of an alternatively embodied surplus thread guide 10 into which the surplus thread 5 can likewise be introduced in simple manner.

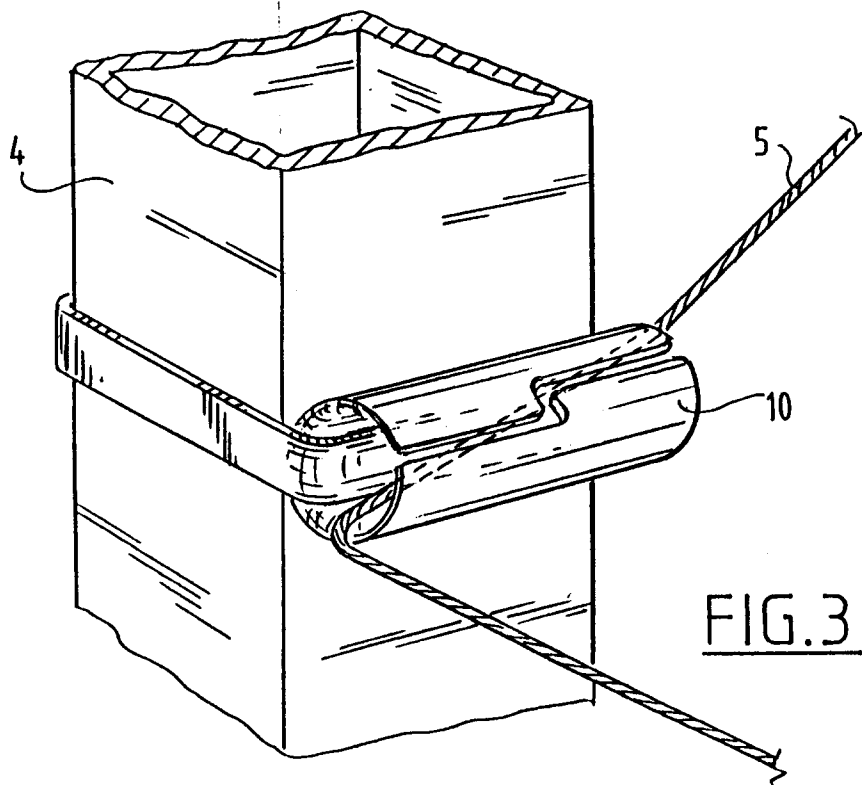
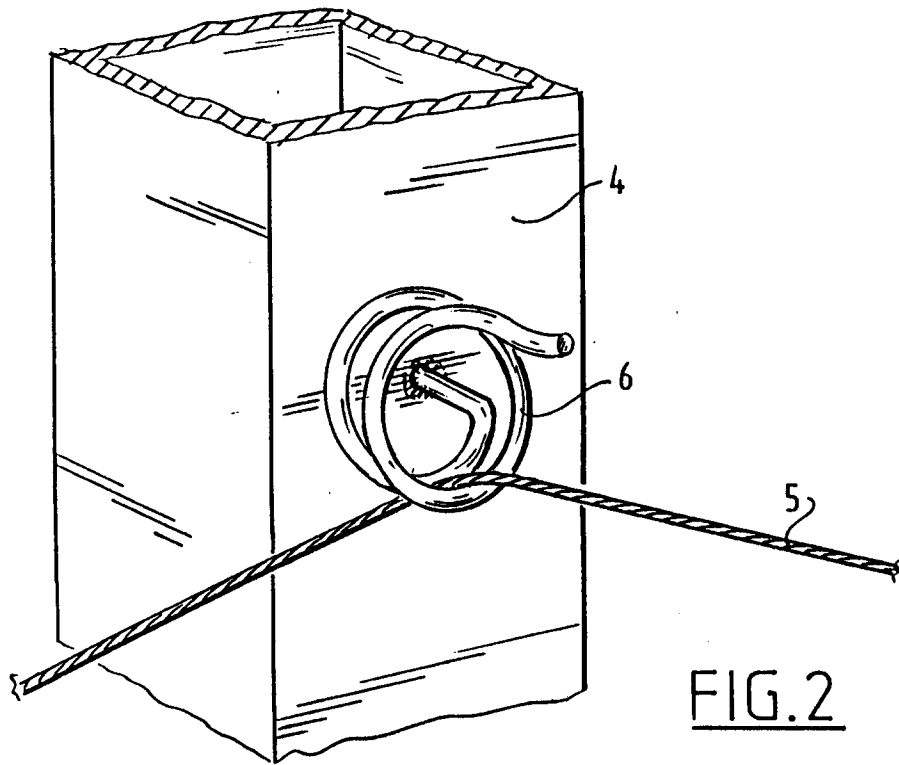
Claims

1. Method for unwinding a surplus of thread material from a bobbin during carpet production, by transporting the surplus thread to a collecting point via at least one surplus thread guide fixed to a frame supporting the bobbin, **characterized in that** during unwinding of the thread for carpet production a roll of thread material is also supported by the frame.
2. Method as claimed in claim 1, **characterized in that** the guide guides a plurality of surplus

threads.

3. Method as claimed in claim 1 or 2, **characterized in that** the surplus thread is guided through the guide on the outside of the frame
4. Method as claimed in any of the foregoing claims, **characterized in that** the surplus thread is pulled through the guide by a drive placed close to the collecting point.
5. Method as claimed in any of the foregoing claims, **characterized in that** the empty bobbins are removed from the frame after unwinding of the surplus thread, whereafter the vacant positions are filled with new rolls of thread material.
6. Frame for use with a method as claimed in any of the foregoing claims, **characterized in that** the frame comprises guides for surplus thread material and comprises at least as many support positions as are required for carpet production.
7. Frame as claimed in claim 6, **characterized in that** the frame comprises more support positions, for example twice as many, than are required for carpet production.







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EUROPEAN SEARCH REPORT

Application Number
EP 95 20 0378

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
D,A	GB-A-665 252 (BRITISH CELANESE LIMITED) * page 1, line 10 - line 32 * * page 1, line 70 - page 2, line 13 * * page 2, line 120 - page 3, line 16; claim 8 * ---	1-5	B65H73/00 B65H51/015
A	US-A-3 794 261 (A.J. FRANKS) * column 1, line 10 - line 13 * ---	1,6,7	
A	US-A-1 532 349 (R. SCHOFIELD) * the whole document * ---	1-5	
A	CH-A-233 826 (A. GABRIAN) ---		
A	US-A-3 910 021 (L.B. VAN PETTEN) ---		
A	US-A-3 452 947 (H.D. THURMAN) * column 3, line 43 - line 51 * -----	1,6,7	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			B65H D02H D04B D05C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 11 May 1995	Examiner D Hulster, E
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 P : Intermediate document		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 & : member of the same patent family, corresponding document	