(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 792 959 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
03.09.1997 Bulletin 1997/36

(51) Int Cl.[6]: **D02G 3/28**

(21) Application number: **97810099.8**

(22) Date of filing: **25.02.1997**

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI NL PT SE

(30) Priority: **01.03.1996 IT RM960139**

(71) Applicant: **Arratex S.r.l.**
20132 Milano (IT)

(72) Inventor: **Ratti, Arturo**
21016 Luino (VA) (IT)

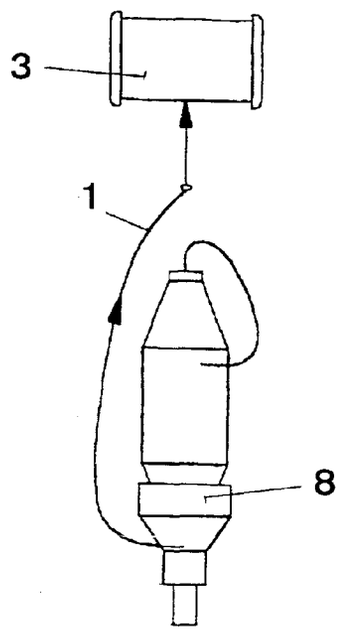
(74) Representative:
Fiammenghi-Domenighetti, Delfina
Fiammenghi-Fiammenghi,
Via San Gottardo 15
6900 Lugano (CH)

(54) Procedure for covering textile fibers by spiraling a covering thread

(57) A procedure for covering one or more textile threads (5) by means of a twisted covering thread (1) that is wound by spiraling around said textile threads, characterized in that it comprises the following phases:

a) twisting of covering thread (1) onto a single- twist or double-twist spindle (8) and winding it up on a spool (3);
b) further increasing the twist of said covering thread (1) by feeding it into another double-twist spindle (7) on which said spool (3) is mounted;
c) inserting, at the same time as phase b), of covering thread or threads (5) into said other double-twist spindle (7) from which thread or threads emerges or emerge from opening (7a) from which covering thread (1) exits after having undergone the above-mentioned increase in twist, mated parallel to said thread;
d) winding of said threads (1, 5) onto a bobbin (9), whereby said threads are connected together by virtue of the fact that covering thread (1), which is twisted by the torsion to which is has been exposed, is wrapped by spiraling around thread or threads to be covered (5).

FIG.1



EP 0 792 959 A1

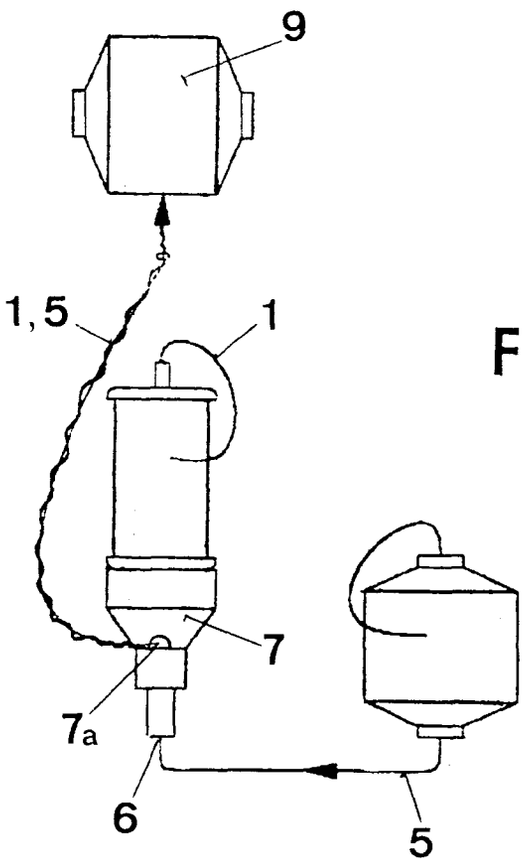


FIG.2

Description

This invention pertains to the textile industry and applies in particular to a procedure that is to be implemented in order to ensure the covering of one or more textile threads by means of a twisted covering thread that is wound "by spiraling" around said textile threads, i.e., in such a way that said covering thread winds up arranged helically around the threads to be covered.

At present the most commonly used procedure for accomplishing this goal calls for the following phases: the covering thread is twisted in such a way as to cause it to assume a helicoidal configuration and its configuration is fixed that way by treating the thread, wound on a bobbin, with high-temperature vapor.

The thread, thus treated, is therefore wound onto a spool and then, by mounting said spool onto a hollow spindle, the actual working is done that makes it possible to helically wind the already-twisted thread around the thread to be covered, which is thus covered specifically by "spiraling", as it is commonly referred to in the technical jargon of that branch of industry.

The inventor of this invention has conceptualized a procedure that achieves the same final result with improved quality but requires fewer operations, thus ensuring a considerable savings in time and materials, and therefore ultimately in production and investment costs.

Among other things, the procedure according to the invention does not require that the twisted thread be treated with vapor, as mentioned above, and thus also ensures a considerable savings of energy.

This procedure is characterized by the characterizing part of the attached Claim 1 and will be described in greater detail below, also making reference to the attached drawings, where:

- Figure 1 shows the phase of twisting of the covering thread on a double-twist spindle;
- Figure 2 shows the phase of mating of the thread to be covered with the covering thread by means of a double-twist spindle.

The procedure according to the invention is distinguished by a considerable degree of simplicity; as already mentioned, said simplicity is due to the smaller number of phases that make up said procedure.

As a matter of fact, the number of phases is reduced to a total of two, as will be clear from the following description. In the description, a set of one or more textile fibers connected together will be referred to as the thread to be covered.

The first phase consists (see Fig. 1) of twisting thread 1 using known methods with the aid of a single-twist or double-twist spindle 8, taking it up on a spool 3.

In the second phase (see Fig. 2) said spool 3 is mounted onto another double-twist spindle 7, which further increases the torsion of covering thread 1, sending it to a collecting bobbin 9 via a side opening 7a.

For the same purpose, thread to be covered 5 is introduced into double-twist spindle 7 through another opening 6 that is located further down, and is forced to follow a path by which it leaves the twisting machine itself via above-mentioned opening 7a thus becoming mated parallel to covering thread 1.

In this way, under the action of spindle 7 itself, covering thread 1, which is further twisted, is arranged helically around the thread to be covered, encompassing it.

Two threads 1 and 5, when thus combined, are then wound onto above-mentioned collecting bobbin 9.

In order to implement the procedure of the invention according to preferred embodiments, the inventor suggests using, to unwind covering thread 1 from spool 3 onto which it was wound after the first twisting, an unwinding device of the "bell" type described in Italian Railway Patent Application No. 21136A/70 or of another type that accomplishes the same goal of not allowing the twisted thread to curl up while unwinding.

The procedure according to the invention may be modified by the specialists in the branch of industry using enhancements, but various implementations of the procedure, if they are to amount to what is stated in the claims, will fall within the framework of the protection conferred by this patent application.

Claims

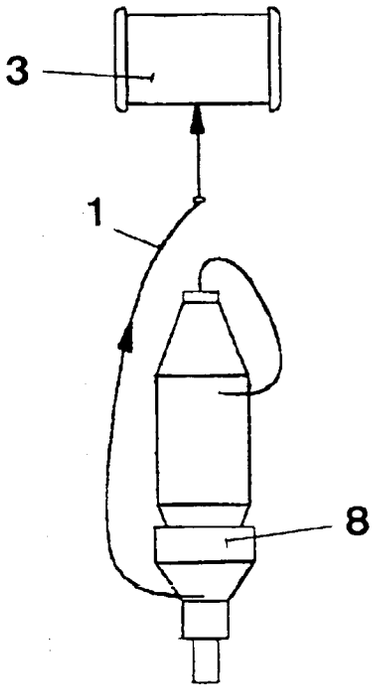
1. Procedure for covering one or more textile threads (5) by means of a twisted covering thread (1) that is wound by spiraling around said textile threads, characterized in that it comprises the following phases:

   a) twisting of covering thread (1) onto a single-twist or double-twist spindle (8) and taking it up on a spool (3);
   b) further increasing the torsion of said covering thread (1) by feeding it into another double-twist spindle (7) on which said spool (3) is mounted;
   c) inserting, at the same time as phase b), of covering thread or threads (5) into said other double-twist spindle (7) from which thread or threads (5) emerges or emerge from opening (7a) from which said covering thread (1) exits after having undergone the above-mentioned increase in twist, mated parallel to said thread;
   d) winding of said threads (1, 5) onto a bobbin (9), whereby said threads are connected together by virtue of the fact that covering thread (1), which is twisted by the torsion to which it has been exposed, is wrapped by spiraling around thread or threads to be covered (5).

2. Procedure according to Claim 1, wherein onto spool (3) that is mated to double-twist spindle (7) is at-

tached an unwinding device that is of such a type as to keep the twisted thread from curling while unwinding.

FIG.1



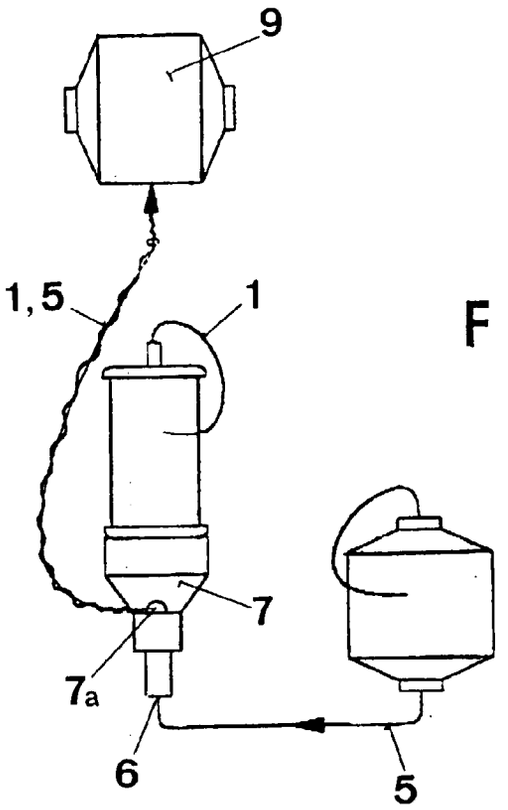


FIG.2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 81 0099

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)
A	EP 0 593 919 A (PALITEX PROJECT-COMPANY GMBH) * the whole document * ---	1	D02G3/28
A	DE 28 04 542 B (SCHUBERT & SALZER MASCHINENFABRIK AG) * figures * ---	1	
A	DE 38 21 830 A (PALITEX PROJECT-COMPANY GMBH) * the whole document * ---	1	
A	FR 1 485 528 A (LEPOUTRE) * the whole document * -----	1,2	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

D02G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	23 June 1997	Tamme, H-M

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

EPO FORM 1503 03.82 (P04C01)