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

(11) EP 0 400 260 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
09.04.1997 Bulletin 1997/15

(51) Int Cl.[6]: **D01H 1/241**

(21) Application number: **89830440.7**

(22) Date of filing: **13.10.1989**

(54) Apparatus for driving the spindles in a ring spinning machine

Vorrichtung zum Antrieb der Spindeln einer Ringspinnmaschine

Dispositif d'entraînement des broches dans un métier à filer à anneaux

(84) Designated Contracting States:
CH DE ES FR GB IT LI

(30) Priority: **01.06.1989 IT 2072589**

(43) Date of publication of application:
05.12.1990 Bulletin 1990/49

(73) Proprietor: **FRATELLI MARZOLI & C. S.p.A.**
I-25036 Palazzolo sull'Oglio Brescia (IT)

(72) Inventors:
- **Bianchi Marzoli, Pietro**
  I-25036 Palazzolo Sull'Oglio (Brescia) (IT)
- **Cossandi, Santino**
  I-25036 Palazzolo Sull'Oglio (Brescia) (IT)

(74) Representative: **Cicogna, Franco**
Ufficio Internazionale Brevetti
Dott.Prof. Franco Cicogna
Via Visconti di Modrone, 14/A
20122 Milano (IT)

(56) References cited:
DE-U- 7 344 757
DE-U- 8 536 632
US-A- 3 645 084

EP 0 400 260 B1

Printed by Jouve, 75001 PARIS (FR)

Description

BACKGROUND OF THE INVENTION

The present invention relates to an apparatus for driving,by a tangential friction,the spindles of a ring spinning machine.

As is known,ring spinning machines usually comprise a spindle driving system which turns the spindles by tangential friction through a belt extending along the major axis of the spinning machine.

By this driving system it is possible to facilitate the maintenance of the machine operating parts and improve the fitting characteristics of the ring spinning machines to the devices for automatically removing or doffing the thread-full tubes.

Also known is the fact that automatic doffing of the full tubes is presently carried out by articulated members which,with the ring spinning machine in a rest condition, transfer the full tubes from the related spindles to pin arranged on a belt which supports corresponding empty tubes.

In this connection it should be pointed out that the machine automatically provides,between tube and thread,a binding force for recovering winding of the thread on an empty tube.

It should be apparent that as an empty tube is arranged on a spindle,the thread being reeled is broken by a simple tension.

Even if this operation can be easily carried out in the case of cotton or other naturally occuring fibres,it is rather complex to be performed in the case of polyester fibres and the like:in fact,in this case, the ultimate tensile strength of the thread is much greater and,accordingly, entrains undesired tension and rotary forces on the spindles.

Moreover the spindle tangential driving belt can slip which could damage the driving belt and the mentioned tension and transmission rollers.

The document DE-U-7 344 757 discloses a driving apparatus for friction driving spindles in a ring spinning machine having the features of the preamble of the claim.

SUMMARY OF THE INVENTION

Accordingly,the present invention sets out to overcome the above mentioned drawbacks by providing an apparatus for driving spindles in ring spinning machines which can be locked during the full spindle doffing operation.

Within the scope of the above mentioned aim, a main object of the present invention is to provide a spindle driving apparatus which is very simple construction -wise and accordingly of small cost.

Another object of the present invention is to provide such a spindle driving apparatus which is very reliable in operation.

According to one aspect of the present invention, the above mentioned aim and objects,as well as yet other objects,which will become more apparent hereinafter, are achieved by a driving apparatus for driving spindles in a ring spinning machine according to the claim.

BRIEF DESCRIPTION OF THE DRAWINGS

Further characteristics and advantages of the driving apparatus for driving spindles in a ring spinning machine will become more apparent from the following detailed description of a preferred embodiment thereof, which is illustrated,by way of an indicative but not limitative example in the figures of the accompanying drawings,in which:

figure 1 shows a schematic diagram of the arrangement of two spindle driving belts.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to the figures of the accompanying drawings,the driving apparatus for driving spindles in a ring spinning machine according to the present invention essentially comprises a belt 1 which can slide along the major axis of the machine.

More specifically, the the belt 1 is driven by a driven roller 2 which is driven with rotary movement, through a flexible transmission member 3,by an electric motor 4,said belt being entrained between said driven roller and a transmission roller 5.

The belt is suitably tensioned or stretched by tension members 6 and is adapted for rotatively driving, by by tangential friction,a plurality of spindles bearing corresponding tubes to be reeled.

On the transmission roller 5,in particular, is mounted a braking device,of conventional type, for locking the pulley thereon said belt 1 is entrained,and,accordingly, the belt itself during the overall doffing operation.

Thus,owing to the disclosed arrangement, the breakage of the thread,which occurs as the pantograph is displaced downward for replacing the tubes does not cause the spindles to undesirably rotate.

From the above disclosure it should be apparent that the disclosed apparatus fully achieves the intended aim and objects.

While the invention has been disclosed and illustrated with reference to a preferred embodiment thereof, it should be apparent that the disclosed embodiment is susceptible to several modifications and variations all of which will come within the scope of the appended claims.

Claims

1. A driving apparatus for friction driving spindles (7) in a ring spinning machine, said spindles (7) being

driven by driving belt means, said apparatus comprising two mirror like arrangements on the right and left sides of the longitudinal axis of said machine, each arrangement including said driving belt means entrained on mirror like arranged pairs of driven roller means (2), transmission roller means (5) and tensioning roller means (6), characterized in that each said driven roller means (2) is driven through a respective flexible transmission belt means (3) by a common single motor (4), braking means being associated with each said transmission roller means (5).

Patentansprüche

1. Eine Antriebsvorrichtung, um Spindeln (7) in einer Ringspinnmaschine mittels Reibung anzutreiben, wobei diese Spindeln (7) von einer Riemenantriebsvorrichtung angetrieben werden, wobei diese Antriebsvorrichtung zwei spiegelbildliche Anordnungen auf der rechten und der linken Seite der Längsachse dieser Maschine umfaßt und jede Anordnung diese Riemenantriebsvorrichtung einschließt, die auf spiegelbildlich angeordneten Paaren von Abtriebsscheibenvorrichtungen (2), Getriebescheibenvorrichtungen (5) und Spannscheibenvorrichtungen (6) geführt werden, dadurch gekennzeichnet, daß jede dieser Abtriebsscheibenvorrichtungen (2) über eine entsprechende flexible Übertragungsriemenvorrichtung (3) von einem einzigen, gemeinsamen Motor (4) angetrieben wird, wobei jeder dieser Getriebescheibenvorrichtungen (5) eine Bremsvorrichtung zugeordnet ist.

Revendications

1. Un dispositif d'entraînement pour entraîner par force de friction des broches (7) dans un métier à filer à anneau, lesdites broches (7) étant entraînées par un dispositif d'entraînement à courroie, ledit dispositif d'entraînement comprenant deux arrangements opposés sur le côté droit et le côté gauche de l'axe longitudinal de ladite machine, l'un étant l'image reflétée de l'autre, chaque arrangement incluant ledit dispositif d'entraînement à courroie entraîné par des paires symétriques de dispositifs d'entraînement à poulie (2), de dispositifs de transmission à poulie (5) et de dispositifs tendeurs à poulie (6), caractérisé en ce que chacun desdits dispositifs menés à poulie (2) est entraîné par l'intermédiaire d'un correspondant dispositif de transmission flexible à courroie (3) par un seul moteur commun (4), des dispositifs de freinage étant associés à chacun desdits dispositifs de transmission à poulie (5).

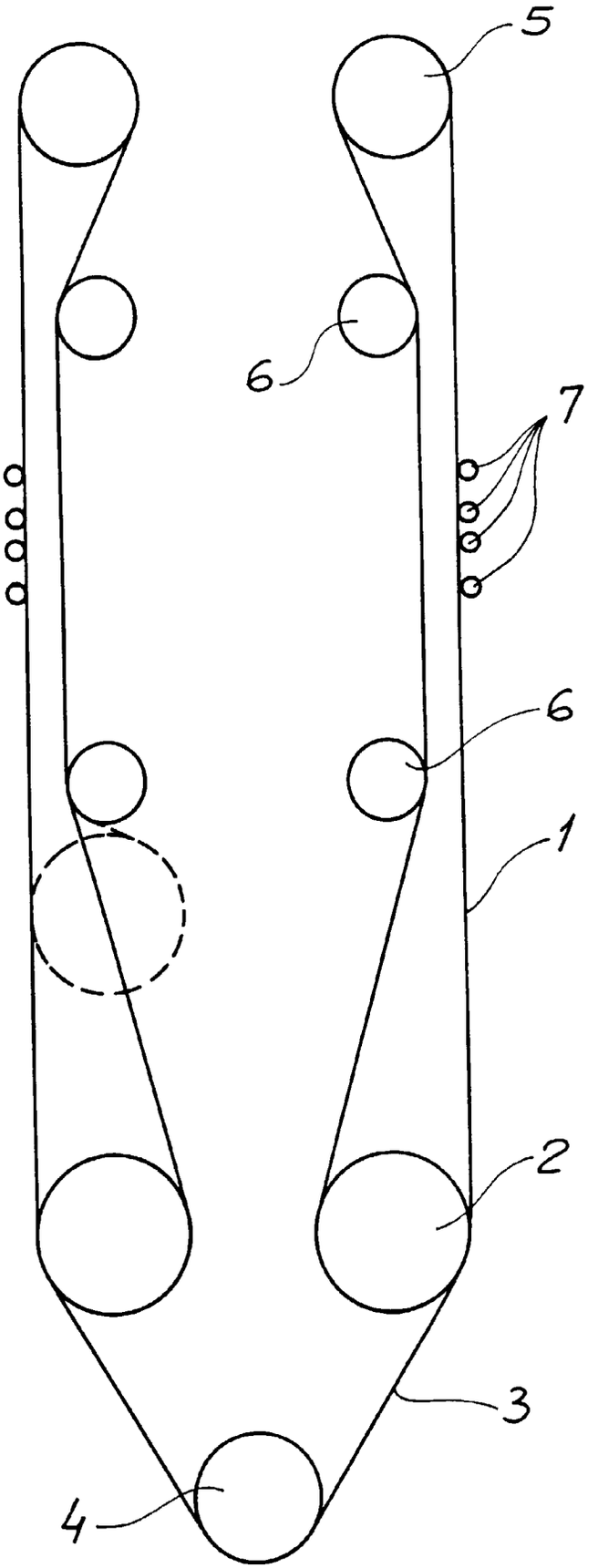

Fig. 1