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

(11) Publication number: **0 069 082**
A1

(12) # EUROPEAN PATENT APPLICATION

(21) Application number: **82830157.2**

(51) Int. Cl.³: **B 65 H 71/00**

(22) Date of filing: **03.06.82**

(30) Priority: **26.06.81 IT 8342481**

(43) Date of publication of application: **05.01.83 Bulletin 83/1**

(84) Designated Contracting States: **AT BE CH DE FR GB LI LU NL SE**

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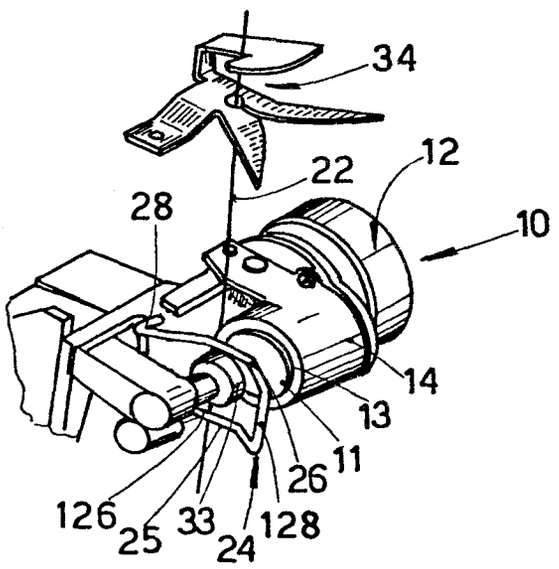
(54) **Improvements to paraffining devices and paraffining devices thus improved.**

(57) Improved paraffining devices for winding machines, comprising yarn-tensioner means (24) which consist of a specially shaped frame (25) equipped with at least one upright (28–128) and which substantially horizontal cross members (26–126) cooperating with the yarn (22) through crosswise guides (27) anchored to them (26–126), whereby at least one upright (28–128) is disposed so as to anchor the paraffining device (10) to the supporting frame (20).



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Description of the invention entitled:

"IMPROVEMENTS TO PARAFFINING DEVICES AND PARAFFINING DEVICES THUS IMPROVED"

in the name of OFFICINE SAVIO Spa. at Pordenone

This invention concerns improvements to paraffining devices and also the paraffining devices which employ said improvements.

To be more exact, the invention concerns improvements applied to devices for winding machines, whereby said devices can lay a given quantity of paraffin on the yarn so as to reduce the coefficient of friction of said yarn running on the guide organs and also to meet the other typical requirements of the paraffining operation.

In effect, said devices make it possible to improve the processing of the yarn and thereby the quality of the finished product.

To this end it is important that said devices should lay on the yarn the best quantity of paraffin, for a quantity not great enough does not enable the sliding properties of the yarn to be increased adequately, whereas too much paraffin increases the coefficient of friction of the yarn against the guide organs and leads to a build-up of paraffin and the dirtying of said organs, thereby impairing their proper working.

Some devices to paraffin the yarn to be wound are known which consist of a washer pressed against a revolving disk of paraffin.

The yarn to be paraffined is made to run between said washer and said revolving disk and the degree of paraffining of the yarn is determined substantially by the pressure of said washer against said disk.

Such a system is not very sensitive and therefore cannot ensure at all times that the yarn will have the best sliding properties.

One purpose of our invention is to obviate this shortcoming of the known art by improvements to paraffining devices for winding machines.

Said improvements enable the best degree of paraffining to be obtained at all times and the coefficient of friction of the yarn against the guide organs to be reduced to the lowest values without damage to the yarn.

This is specifically brought about by the use of special yarn-tensioner means which cooperate with means that position the disk of paraffin axially, whereby the position of at least one of said means can be regulated as wished.

The particular cooperation between said means makes it possible to cause the yarn to follow a preferential path at least partly in contact with the front surface and terminal side surface of the paraffin disk.

It has been found in the laboratories of this author that an appropriate definition of the particular path of the yarn in contact with the paraffin enables the best reduction of the coefficient of friction of said yarn to be obtained.

The invention is therefore displayed in improvements to paraffining devices for winding machines whereby said improvements comprise pressing means which press the yarn running towards the yarn package against a paraffin disk, and whereby

said paraffin disk is made to revolve by motor means and is axially positioned by axial positioning means, and whereby said axial positioning means include thrust-spring repelling means balanced by piston means pressing against the disk, said improvements being characterized by comprising yarn-tensioner means.

The invention is also embodied in a paraffining device for winding machines which comprises adjustable pressure means pressing the yarn running towards the yarn package against a disk of paraffin, whereby said disk of paraffin is made to revolve by motor means and is positioned axially by axial positioning means, and whereby said axial positioning means include thrust-spring repelling means balanced by piston means pressing against the disk, said device being characterized by comprising yarn-tensioner means.

We shall describe hereinafter a preferential embodiment of the invention as a non-restrictive example and shall refer to the attached table, wherein: -

Fig.I gives a diagram of a side view of a paraffining device improved according to the invention;

Fig.2 shows a view from above of the paraffining device of Fig.I;

Fig.3 gives a three-dimensional view of the paraffining device of Figs. I and 2.

In the figures the same parts or parts having the same functions bear the same reference numbers.

In particular, the paraffining device I0 of the invention bears a disk or small cylinder of paraffin II, which is made to revolve by a motor, a geared motor in our example, I2 through a telescopic entraining bush I3 and is upheld axially by a drum-wise support I4.

The disk of paraffin II is kept in its working position by suitable axial positioning means I5.

Said axial positioning means I5 comprise a thrust spring I6 located coaxially around the shaft I7 of the motor I2 within said drum-wise support I4.

Said thrust spring I6 and said shaft I7 cooperate with the telescopic entraining bush I3 and thrust it outwards and make it rotate respectively.

In particular, the repelling action of said spring I6 is balanced by the action of a piston I8 pressing against the disk, whereby the position of said piston I8 can be regulated axially by operating a threaded ring nut I9, which clamps said piston I8 to a corresponding support 2I.

By regulating the axial position of the piston I8 pressing against the disk II it is possible to locate the disk of paraffin II in a given position axially at right angles in relation to the yarn 22.

By means of such regulation it is substantially possible to obtain varying contact between the yarn 22 and the front surface 23 of the disk II.

Said means for the axial positioning I5 of the disk II cooperate in a coordinated manner with yarn-tensioner means 24 which consist substantially of a specially shaped frame 25 comprising some uprights 28-I28 and some horizontal cross members 26-I26 cooperating with the yarn 22 through tangential porcelain guides 27 secured lengthwise to said cross members 26-I26.

The upright 28 is employed to connect said yarn-tensioner means 24 to the supporting frame 20, but the upright I28 can perhaps be lacking.

The horizontal cross members 26-I26 also include, in their part not connected to the specially shaped frame 25, an oblique development 29 which acts to induct the yarn 22.

Said specially shaped frame 35 is located coaxially with the disk of paraffin II and has said tangential yarn 22 guides

27 placed opposite to the front surface 23 of said disk and outwardly close thereto II (Fig.I).

In this way it is possible to modify with a varying degree of gradualness the path of the yarn 22 by making the disk II penetrate axially within the specially shaped frame 25.

This is brought about by regulating the axial position of said paraffin disk II by suitably tightening or unscrewing the threaded ring nut I9.

The yarn 22 thus makes contact with the front surface 23 and at least partly with the end of the side surface 32 of the paraffin disk II, as shown in Fig.I, and in this way an excellent degree of paraffining of the yarn 22 is brought about.

Said front surface 23 may possibly be speedily detached and distanced from the yarn 22 by extending the piston I8 by means of hydraulic or pneumatic pressure.

The figures also show the pressing means 33 pressing the yarn 22 against the front surface 23 of the paraffin disk II, and the yarn-guide taker-in 34, which can keep the yarn 22 going up towards the yarn package in the right position.

In particular, the pressing means 33 comprise an articulated 36 head 35 able to adapt itself to any unevenness of the sliding yarn 22 or of the revolving front surface 23 with which it is in at least temporary contact.

The improvements in question enable the yarn 22 to be pressed against the paraffin disk II by direct action of said pressing means 33 or by the action of the axial positioning means I5 or by combined action of both said means 33-I5.

We have described here a preferential embodiment of the invention but variants are possible for a person skilled in this field.

Thus the shapes and sizes can be changed and it is possible to envisage that the yarn-tensioner means 24 can be positioned axially by regulating the position of suitable screws 30

clamping the frame 25 to the frame 20 within corresponding slots 3I in the upright 28.

It is also possible to visualise means for anchoring said frame 25 which are different from the screw means 30 described and shown, said different means being of a type with their anchorage adjustable by sliding, for instance.

It is further possible to envisage that the thrust pressure of the pressing means 33 can be suitably regulated.

These and other variants are all possible for a person skilled in this field within the scope of the idea of the solution of the invention.

CLAIMS

I. Improvements to paraffining devices (I0) for winding machines, which comprise pressing means (33) pressing the yarn (22) running towards the yarn package against a disk of paraffin (II), whereby said paraffin disk (II) is made to revolve by motor means (I2) and is positioned axially by axial positioning means (I5), and whereby said axial positioning means (I5) include thrust-spring repelling means (I6) balanced by piston means (I8) pressing against the disk (II), said improvements being characterized by comprising yarn-tensioner means (24).

2. Improvements to paraffining devices(I0) for winding machines as in Claim I, characterized by the fac that the yarn-tensioner means (24) comprise a specially shaped frame (25) equipped with at least one upright (28-I28) and with substantially horizontal cross members (26-I26) cooperating with the yarn (22) through crosswise guides (27) anchored to them (26-I26), whereby at least one upright (28-I28) is disposed so as to anchor the paraffining device (I0) to the supporting frame (20).

3. Improvements to paraffining devices (I0) for winding machines as in Claim I or 2, characterized by the fact that the specially shaped frame (25) is located substantially on the same axis as the paraffin disk (II) and comprises crosswise guides (27) for the yarn (22) which are opposed to the front surface (23) of said paraffin disk (II) and are outwardly near thereto (II).

4. Improvements to paraffining devices (I0) for winding machines as in Claim I and in one or the other of the Claims thereafter, characterized by the fact that the horizontal cross members (26-I26) have an oblique development (29) which acts to induct the yarn (22).

5. Improvements to paraffining devices (IO) for winding machines as in Claim I and in one or another of the Claims thereafter, characterized by the fact that the specially shaped frame (25) is substantially fixed solidly to the supporting frame (20).

6. Improvements to paraffining devices (IO) for winding machines as in Claim I and in one or another of the Claims thereafter up to Claim 4 inclusive, characterized by the fact that the specially shaped frame (25) can be positioned axially, whereby at least one upright (28-I28) is equipped with at least one slot (3I) for the positioning of the screws (30) clamping the specially shaped frame (25) to the supporting frame (20), and whereby the position of the specially shaped frame (25) is adjusted by the sliding and axial positioning of said upright (28 or I28) in relation to said clamping screws (30).

7. Improvements to paraffining devices (IO) for winding machines as in Claim I and in one or another of the Claims thereafter, characterized by the fact that at least one upright (28 or I28) comprises means for anchorage which can be regulated by sliding.

8. Improvements to paraffining devices (IO) for winding machines as in Claim I and in one or another of the Claims thereafter, characterized by the fact that the position of the piston means (I8) pressing on the disk (II) can be adjusted axially by operating a threaded ring nut (I9) cooperating with a corresponding support (2I).

9. Improvements to paraffining devices (IO) as in Claim I and in one or another of the Claims thereafter, characterized by the fact that the pressing means (33) have an articulated (36) head (35).

IO. Paraffining device (IO) for winding machines which comprises pressing means (33) pressing the yarn (22) running

towards the yarn package against a disk of paraffin (II), whereby said paraffin disk (II) is made to revolve by motor means (I2) and is positioned axially by axial positioning means (I5), and whereby said axial positioning means (I5) comprise thrust-spring repelling means (I6) balanced by piston means (I8) pressing the disk (II), said device being characterized by including yarn-tensioner means (24).

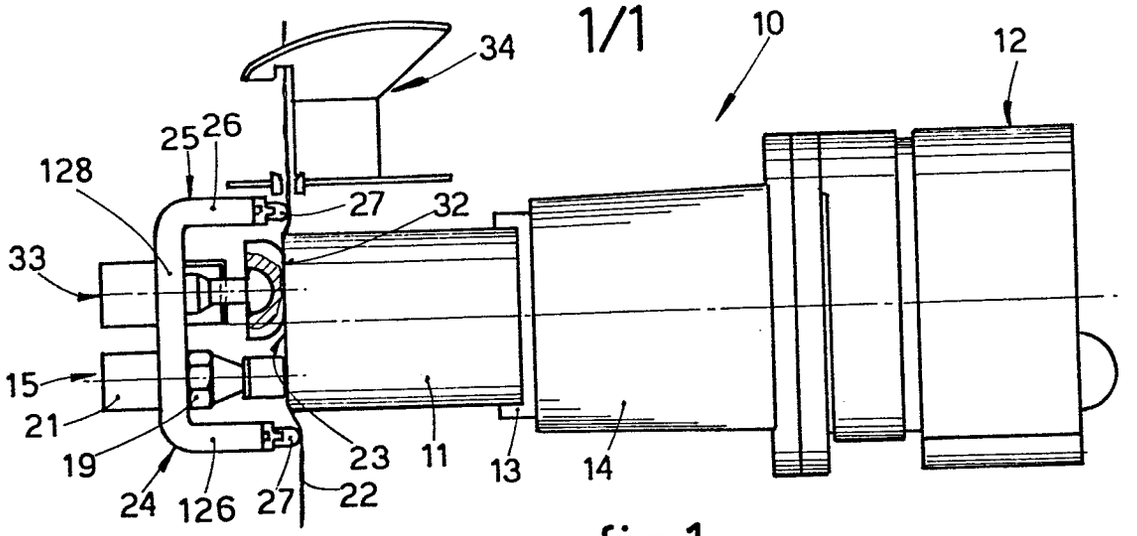

fig.1

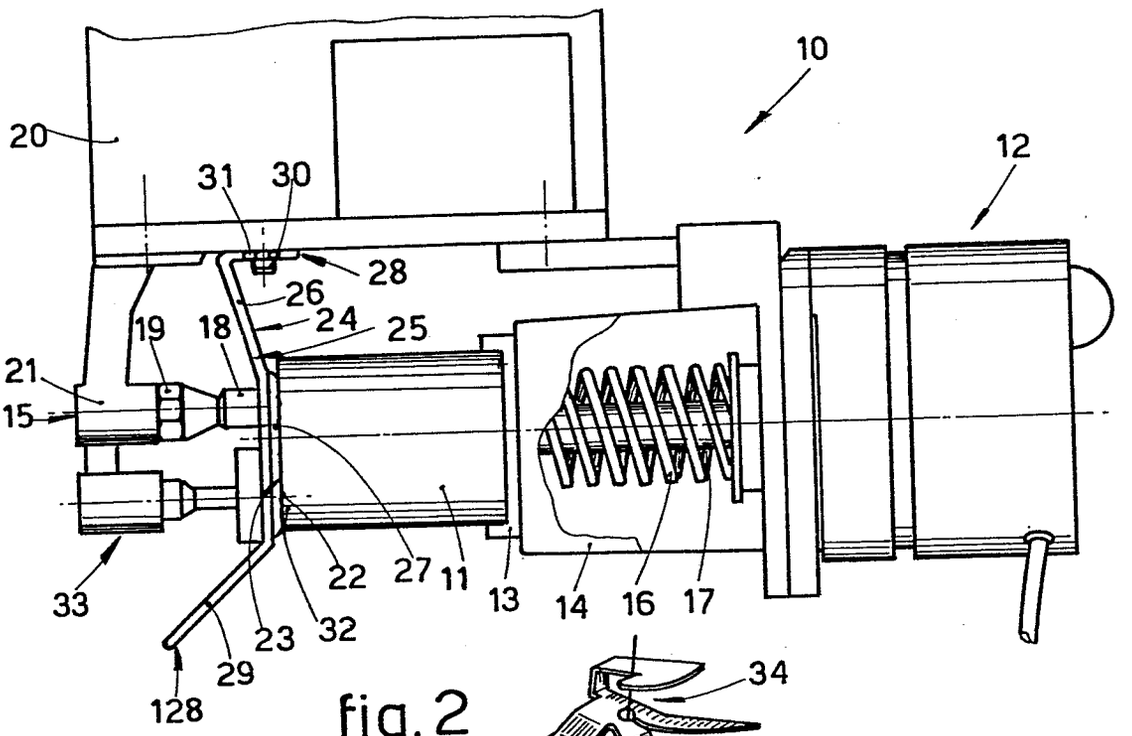

fig. 2

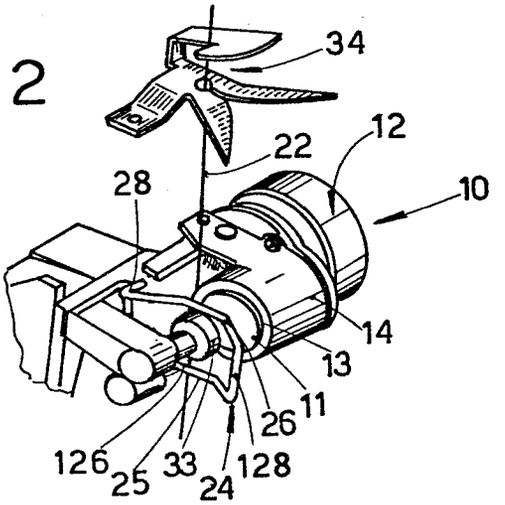

fig.3

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EUROPEAN SEARCH REPORT

Application number

EP 82 83 0157

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. ³)
X	US-A-3 297 264 (G.E.GILBOS) *The whole document, in particular column 2, lines 18-25; figures 1,2*	1,3,8, 10	B 65 H 71/00
A	US-A-2 987 034 (A.J.REDMOND)		
A	FR-A-2 186 556 (HAMEL)		

TECHNICAL FIELDS SEARCHED (Int. Cl. ³)

B 65 H
D 01 H
D 06 B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	29-09-1982	DEPRUN M.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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