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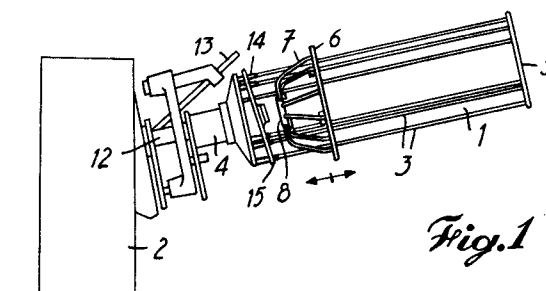
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B-2600 Antwerpen (Berchem)(BE)(54) **Device for tensioning the yarn wound on the reel of a yarn accumulator.**

(57) The reel (1) is mounted in the yarn accumulator (2) with an upward slant and comprises a guide ring (6) which is freely mounted around the longitudinal rods (3) of the reel (1) and which serves to guide the yards wound off the reel, on which guide ring (6) several conically fastened detensioners (7) are provided where the ends which are fastened to the guide ring protrude beyond the circumference of the reel (1) and where the other ends are located inside the reel, and where several guide rails (9) are mounted in the reel parallel to the longitudinal rods of the reel, and guides (10) are provided on said guide ring (6) and yarn tensioners (7) which guides are intended for the movement in the longitudinal direction over the reel (1) and along the guide rails (9) of the guide ring (6) with yarn tensioners (7).

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The invention is for a device for slightly tensioning yarn which is wound by a rotating driven pipe or other body in successive loops around the standing reel of a yarn accumulator and where a rocking disc causes the formed loops of yarn to be displaced toward the free end of the reel, from which point the yarn is wound off so that it can be led to any device whatsoever for the processing of the yarn.

The rocking disc must therefore overcome the friction between the yarn loops and the reel during the displacement of the yarn loops on the reel. In order to limit this friction and also to keep the load on the rocking disc to a minimum, the tension of the yarn wound around the reel must be limited. This is achieved by allowing the circumference of the reel to diminish along its length. Thus, in cases where the reel consists of longitudinal rods, these rods are provided on the parts on which the yarn is wound with a conic part, causing the yarn pushed up the reel to be gradually and slightly detensioned in order to facilitate the displacement of the yarn loops along the reel.

A disadvantage of this however is that there is a danger that when the detensioned yarn is wound off via a guide over the head of the reel, several loops of yarn may be taken off at once thus giving rise to defects and yarn breakages.

In order to remedy this, according to the main characteristic of the invention the reel is mounted so that it slants upwards in the yarn accumulator and a guide ring is mounted freely around the longitudinal rods of the reel, which guide ring serves to guide the yarn being wound off the reel, on which guide ring several yarn tensioners mounted in a conical arrangement are provided where the ends which are attached to the guide ring protrude outside the circumference of the reel and where the other ends are located inside the reel, while several guide rails are mounted in the reel parallel to the longitudinal rods of the reel, and guides are provided on said guide ring and yarn tensioners, which guides are meant for the movement of the guide ring with the yarn tensioners longitudinally over the reel along the guide rails.

The slanted positioning of the reel and the weight of the guide ring itself with the yarn tensioners mounted in a conic arrangement causes the yarn to be tensioned slightly at the place where it is wound off the reel, so that the yarn is wound off over the guide ring more in the radial sense and less in the longitudinal direction and without problems.

By way of example, and without being in any limitative, a more detailed description of a selected embodiment of the device according to the invention is given below. This description refers to the attached drawing, where:

fig. 1 shows a side elevation of a yarn accumulator to which the device according to the invention is applied;

fig. 2 shows an enlarged side elevation of the device;

fig. 3 shows a cross-section along the line III-III of fig. 2

In these figures it will be seen that the reel 1 is mounted so that it slopes upwards in the yarn accumulator 2, where known means are provided for keeping the reel immobile. This reel consists of several longitudinal rods 3, one end of which is fixed in a reel bearer 4 which is kept immobile and where the other end of which is attached to a ring 5. A guide ring 6 is provided over the longitudinal rods of reel 1 which can move freely in the longitudinal direction along the reel, where the diameter of the guide ring 6 is greater than that of the reel 1 formed by the rods 3. Several yarn tensioners are mounted conically on the guide ring 6, which tensioners consist in this case of rods 7. These rods are positioned in such a way that their ends which are mounted on the guide ring 6 protrude slightly beyond the longitudinal rods of the reel and the other ends slope at an angle inwards and are attached to supporting ring 8 of a smaller diameter than that of the guide ring 6, which supporting ring is freely located in reel 1. The rods 7 may also consist of plates or other elements. A number of guide rails 9 are mounted in the reel 1 parallel to the longitudinal rods 3 of the reel 1. Two guides set at an angle to one another run over each guide rail such as guide rollers 10 the spindles of which are attached to arms 11 which are radially attached to the guide ring 6 and the supporting ring 8. As a result the guide ring with yarn tensioners can be freely moved over the guide rails 9 and the reel 1. When at rest the guide ring 6 with the yarn tensioner will roll under its own weight to the head of the yarn accumulator 2 (fig.1).

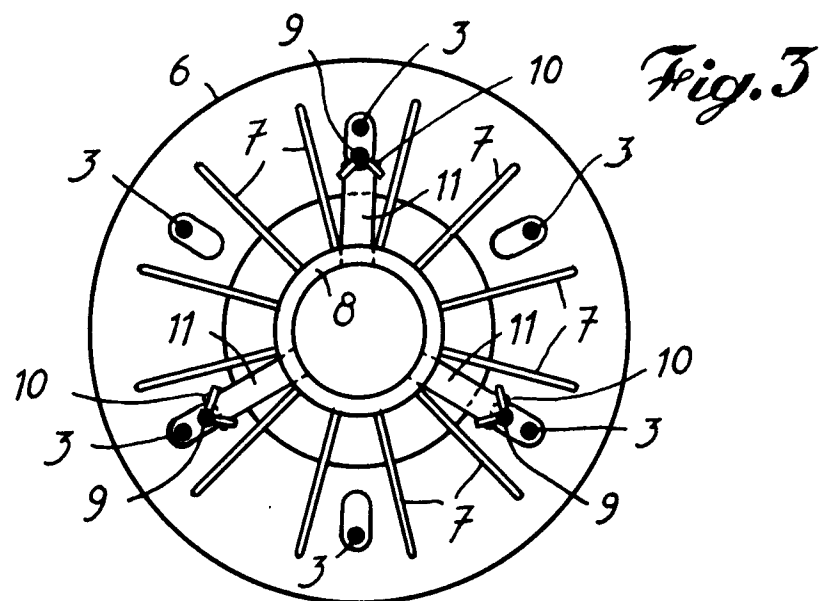
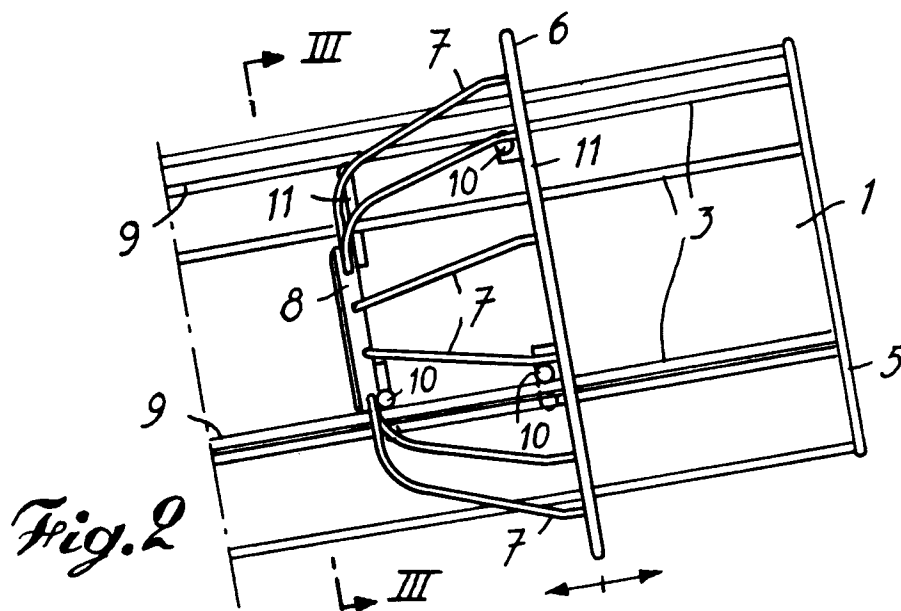
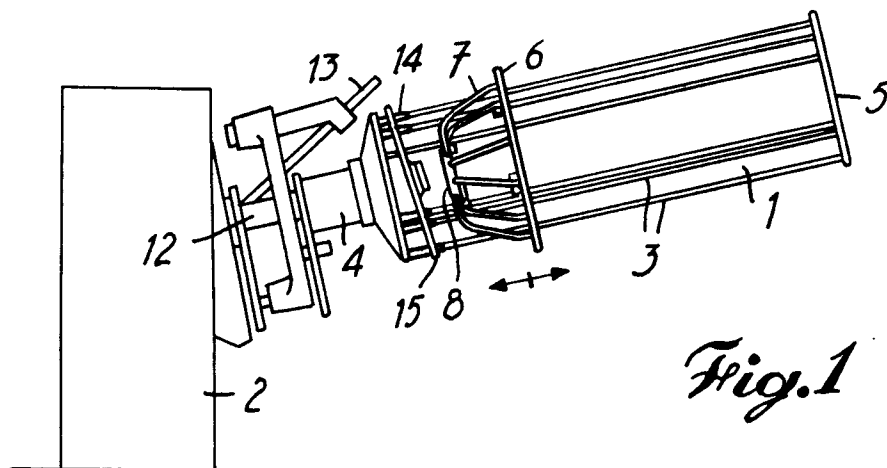
When the shaft 12, which is provided with an axial channel, of the yarn accumulator is driven so that it rotates, the outwardly diverging pipe 13 which is fastened to said shaft and through which the yarn requiring winding is supplied via the axial channel will wind the yarn in successive yarn loops around the conic end 14 of the longitudinal rods 3 of the immobile reel. The rocking disc 15 which is mounted on shaft 12 so that it does not turn will cause the yarn loops to be pushed without interruption to the front end of the reel 1, so that the yarn loops which leave the conic ends 14 of the longitudinal rods 3 of the reel 1 are slightly detensioned. The conically arranged rods 7 which constitute the yarn tensioners position themselves by their own weight beneath the loops of yarn, so that the yarn, which at this point is wound off virtually radially over the guide ring 6, is again slightly tensioned.

As a result the simultaneous unwinding of several loops of yarn from reel 1 which could give rise to defects and yarn breakage is avoided. The guide ring 6 with the yarn tensioners 7 will move in accordance with the quantity of yarn wound on the reel and will tension the yarn slightly at every point of the reel. 5

It goes without saying that the form and the dimensions of the components described above may differ and that some of these parts may be replaced by others which serve the same purpose. Thus the yarn tensioners may consist of rods 7, plates or other elements and the guides 10 for the movement of the guide ring and the yarn tensioners may consist of rollers, wheels, bearings or sliders. 10 15

Claims

1. Device for the tensioning of loops of yarn formed on a immobile reel (1) consisting of longitudinal rods (3) of a yarn accumulator (2), characterized by the fact that the reel (1) is mounted in the yarn accumulator (2) with an upward slant and comprises a guide ring (6) which is freely mounted around the longitudinal rods (3) of the reel (1) and which serves to guide the yarns wound off the reel, on which guide ring (6) several conically fastened detensioners (7) are provided where the ends which are fastened to the guide ring protrude beyond the circumference of the reel (1) and where the other ends are located inside the reel, and where several guide rails (9) are mounted in the reel parallel to the longitudinal rods of the reel, and guides (10) are provided on said guide ring (6) and yarn tensioners (7) which guides are intended for the movement in the longitudinal direction over the reel (1) and along the guide rails (9) of the guide ring (6) with yarn tensioners (7). 20 25 30 35 40
2. Device according to claim 1, characterized by the fact that the yarn tensioners consist of conically arranged rods (7) one end of which is fastened to the guide ring (6) and the other end to a smaller supporting ring (8) inside the reel. 45
3. Device according to claim 1, characterized by the fact that each guide consists of two guide rollers (10) set at an angle to one another which can be moved over the longitudinal guide rails (9). 50 55
4. Device according to claim 1, characterized by the fact that the external diameter of the guide ring (6) is greater than that of the reel (1).





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EUROPEAN SEARCH REPORT

Application Number

DOCUMENTS CONSIDERED TO BE RELEVANT			EP 91202535.0
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	<u>DE - B - 3 238 376</u> (SCHUBERT & SALZER) * Fig. 1 *	1, 4	B 65 H 59/06
A	<u>DE - A - 3 036 247</u> (FA. JOS. ZIMMERMANN) * Page 11, lines 14-24; fig. 1, 4 *	1	
A	<u>CH - A - 641 119</u> (LUCKE-APPARATE-BAU GMBH) * Fig. 1, 4 *	4	
A	<u>CH - A - 569 655</u> (GEBRÜDER SULZER) * Fig. 1 *	4	
A	<u>US - A - 4 092 006</u> (JACOBSSON) * Fig. 1 *	4	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			B 65 H 59/00 B 65 H 51/00 B 65 H 54/00 B 65 H 75/00 B 65 H 77/00 D 03 D 47/00
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
VIENNA		12-12-1991	WEISS
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	