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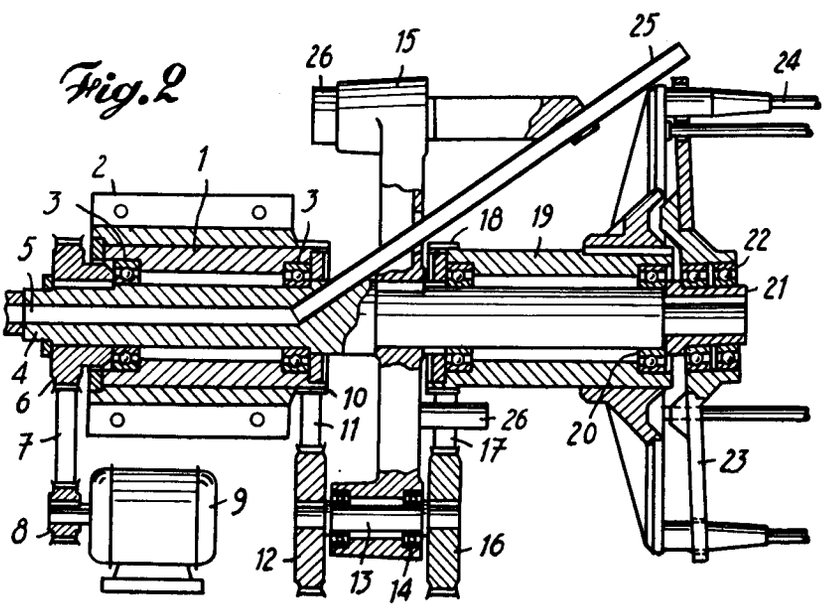
(54) Yarn accumulator.

(57) The means of holding the reel (24) immobile consists of a rotor (15) mounted on the rotating driven shaft (4), a planet spindle (13) borne on the rotor (15) which spindle runs parallel to the rotating driven shaft (4), a toothed mechanical transmission (10-11-12) between the fixed frame (1) of the yarn accumulator (2) and the planet spindle (13) borne by the rotor (15) and a toothed mechanical transmission (16-17-18) between the planet spindle (13) borne by the rotor (15) and the reel (24), where the transmission ratios between the two transmissions are the same

Fig.2



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The invention is for a yarn accumulator intended for the formation of a stock of yarn between two devices used for the processing of textile yarns, such as between a cross-wound bobin and a loom or a yarn handling device and a bobbin winding machine.

Known yarn accumulators have a reel or other prism-shaped body on which yarns are wound in successive loops, a means for keeping the reel still, a driven shaft which moves freely in said reel provided with an axial channel which is extended by a pipe which diverges outwards for the supply of the yarn and for winding the yarn onto the reel, a rocking disc freely mounted on said shaft which is intended to bring about the displacement of the yarn loops formed successively on the reel along its length, and between the rocking disc and the shaft a means of rocking the rocking disc. The reserve of yarn stored on the yarn accumulator is then wound off to be transferred to any device for processing textile yarns whatsoever.

In one such yarn accumulator the means of keeping the reel immobile consists of a counterweight attached to the reel. A disadvantage of this that the ball bearings which enable the reel to be freely mounted on the rotating driven shaft of the outwardly diverging pipe are unevenly and severely loaded, so that premature wear arises.

In another known yarn accumulator the means of keeping the reel immobile consists of a magnetic device which attracts and immobilizes the reel, A disadvantage of this is that when metal thread is used in the yarn the yarn is attracted by the magnetic device, so that problems may arise when winding the yarn on the reel.

In order to counter these disadvantages and bring about the efficient winding of the yarns on the reel, the means for immobilizing the reel according to the main characteristic of the invention consists of a rotor which is mounted on the rotating driven shaft of the diverging pipe, a rotating planet spindle borne by the rotor parallel to the rotating driven shaft, a toothed mechanical transmission between the fixed frame of the yarn accumulator and the planet spindle borne by the rotor, and a toothed mechanical transmission between the planet spindle borne by the rotor and the reel, where the transmission ratio between both transmissions is the same.

The toothed mechanical transmission may for example consist of a toothed belt transmission, a gear wheel transmission or a sprocket and chain transmission.

In the following a more detailed description of a selected but in no way limited embodiment of the yarn accumulator according to the invention is given. This description refers to the attached drawing where:

fig. 1 shows a perspective view of the device;
fig. 2 shows a longitudinal section through it.

In these figures can be seen frame 1 of the yarn accumulator 2 in which a shaft 4 is mounted by means of ball bearings 3, which shaft 4 is provided with a channel 5 for the supply of the yarn for winding. A toothed pulley 6 is mounted on the said shaft over which a toothed belt 7 runs which also runs over a toothed pinion 8 of an electric motor 9, to impart a rotational drive to said shaft 4. The cylindrical part of the frame 1 is provided with a toothed circular part 10 over which a toothed belt 11 runs which also runs over a toothed pulley 12 which is mounted on a planet spindle 13 which runs parallel to shaft 4. This planet spindle is mounted by means of ball bearings 14 in a double arm rotor 15 fastened to the rotating driven shaft 4. A toothed pulley 16 is mounted on the other end of the planet spindle 13, over which a toothed belt 17 runs which also runs over the toothed circular part 18 of the reel carrier 19 which is to be held immobile. The diameters of the toothed elements are chosen in such a way that the transmission ratios between on the one hand toothed part 10 and toothed pulley 12, and on the other hand the pulley 16 and the toothed part 18, are the same. The rotating driven shaft 4 is borne by ball bearings 20 in the reel carrier 19 and its free end is provided with an eccentric bushing 21 on which a rocking disc 23 is mounted by means of ball bearings 22, which is moved in the vertical plane at an angle during the rotating movement of shaft 4. The longitudinal rods of reel 24 pass freely through this rocking disc, which reel is fastened on the reel carrier 19. The axial channel 5 of the rotating driven shaft 4 is extended by an outwardly diverging pipe 25 borne on one of the arms of the rotor 15 and through which the yarn supplied via the channel 5 is wound in successive loops around the reel 24. The loops of yarn formed in this way on the reel are displaced in the longitudinal direction on the reel by the rocking disc 23 to the point where the yarn runs off. In order to stabilize the rotor 15 mounted on the shaft 4 during its rotating movement, counterweights 26 are provided at suitable places.

As the transmission ratios between on the one hand the toothed part 10 of the frame 1 and the toothed pulley 12, and one the other hand the toothed pulley 16 and the toothed part 18 of the reel carrier 19 are the same, the reel carrier 19 with the reel 24 will, during the rotating motion of the shaft 4 and the rotor 15 mounted upon it which carries the toothed pulleys 12 and 16, remain immobile. By accurately balancing the rotor 15 by means of the counterweights fastened to it, the whole will work impeccably and premature wear of certain components of the yarn accumulator will be

avoided.

It goes without saying that the form and the dimensions as well as the mutual positioning of the parts described above may differ and that some of these parts may be replaced by others which serve the same purpose. For example instead of toothed belt transmission a geared transmission or a sprocket and chain transmission could be used

Claims

1. Yarn accumulator (2) for the formation of a stock of yarn between two devices for processing textile yarns and comprising a prism-shaped reel (24) on which yarn is wound in successive loops, a means of keeping the reel immobile, a driven shaft (4) which rotates freely in said reel, said shaft being provided with an axial channel (5) extended by a pipe which diverges outwards (25) for the supplying the yarn to and winding it up on the reel, a rocking disc (23) freely mounted on said shaft (4) and intended for displacing the loops of yarn successively formed on the reel in the longitudinal direction, and between the rocking disc (23) and the shaft (4) a means (21) for rocking the rocking disc, characterized by the fact that the means of holding the reel (24) immobile consists of a rotor (15) mounted on the rotating driven shaft (4); a planet spindle (13) borne on the rotor (15) and which runs parallel to the rotating driven shaft (4), a toothed mechanical transmission (10-11-12) between the fixed frame (1) of the yarn accumulator (2) and the planet spindle (13) borne by the rotor (15) and a toothed mechanical transmission (16-17-18) between the planet spindle (13) borne by the rotor (15) and the reel (24), where the transmission ratios between the two transmissions are the same.

2. Yarn accumulator according to claim 1, characterized by the fact that the toothed mechanical transmission between the frame (1) of the yarn accumulator (2) and the planet spindle (13) borne by the rotor (15), consists of a toothed circular part (10) of said frame (1), a toothed pulley (12) mounted on the planet spindle (13) borne by the rotor (15) and a toothed belt (11) which runs over the toothed part (10) and the toothed pulley (12) and where the toothed mechanical transmission between said planet spindle (13) borne by the rotor (15) and the reel to be held immobile (24), consists of a toothed pulley (16) mounted on said planet spindle (13) borne by the rotor (15), a toothed circular part (18) of the reel (24) and a toothed belt which runs over the toothed part (18) and the toothed pulley (16).

3. Yarn accumulator according to claim 2,characterized by the fact that the toothed parts (10-18) and the toothed pulleys (12-16) have the same diameter.

4. Yarn accumulator according to claim 1,characterized by the fact that the rotor (15) is a double arm rotor the arms of which are extensions of one another and that one arm bears the planet spindle (13) and the other arm supports the outwardly diverging pipe (25).

5. Yarn accumulator according to claim 1,characterized by the fact that the rotor (15) is provided with counterweights (26) to stabilize it.

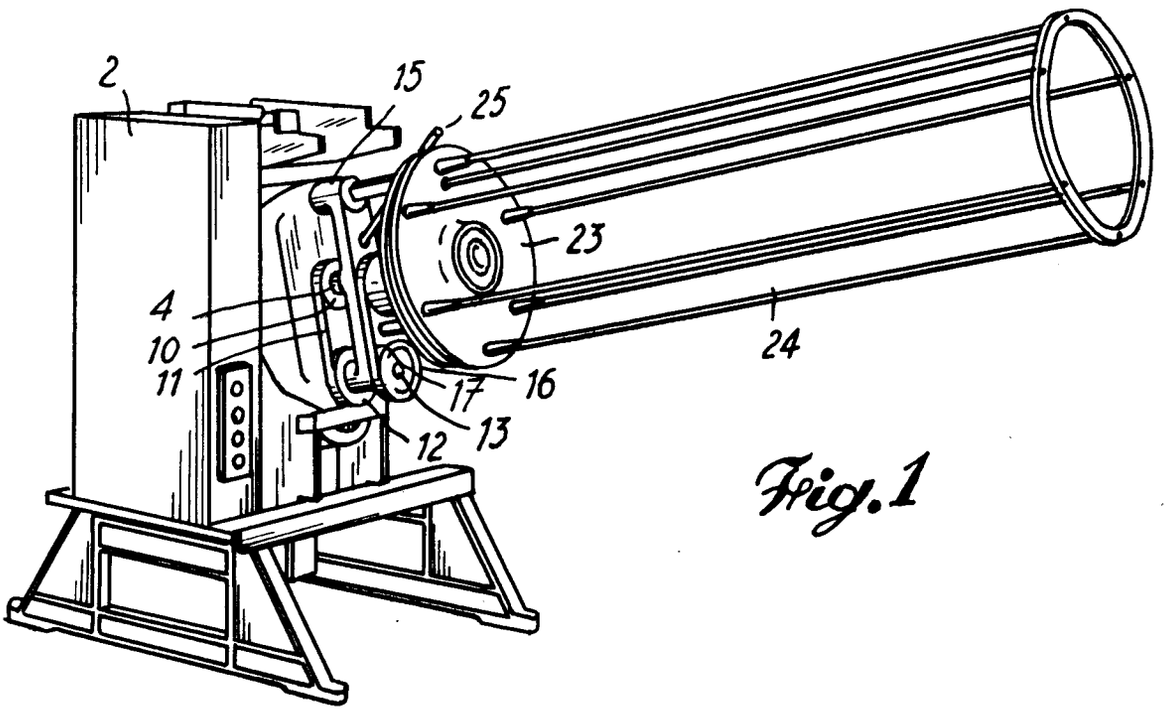
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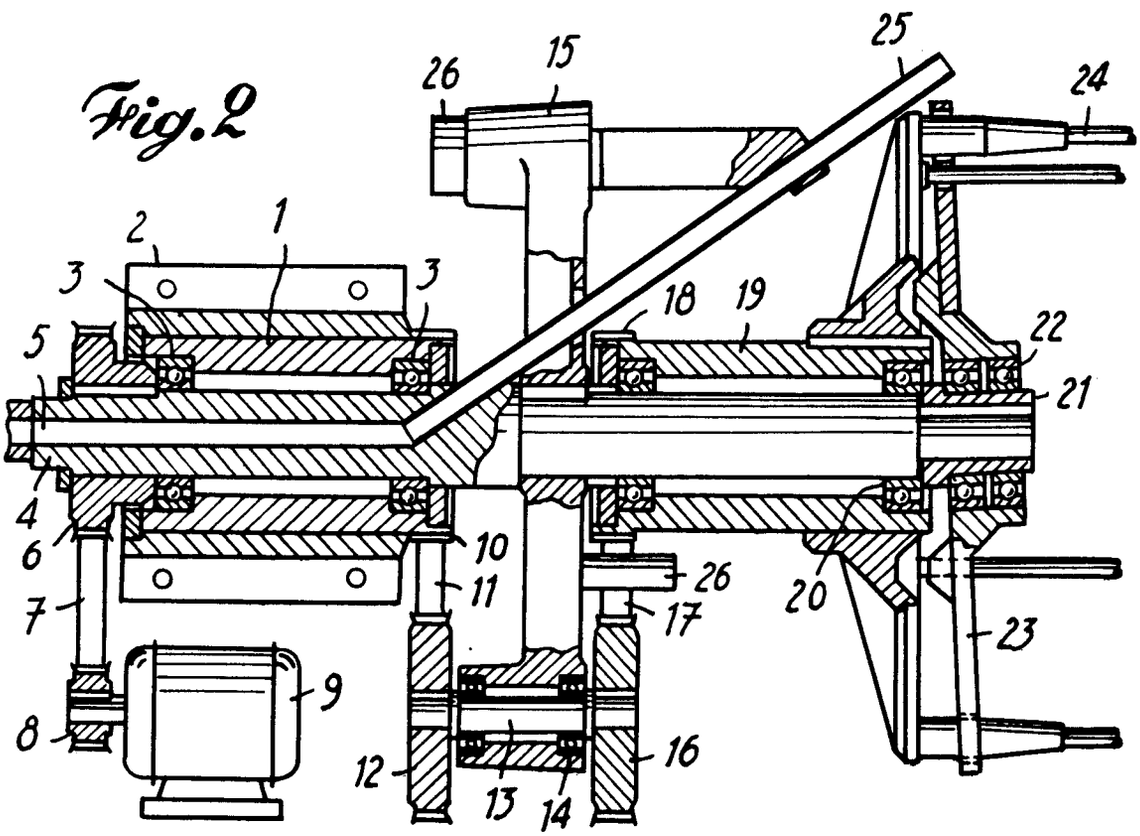
Fig.1

Fig.2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EUROPEAN SEARCH REPORT

Application Number EP 91202534.3

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.5)
A	CH - A - 641 421 (AKTIEBOLAG IRO) * Fig. 5,6; fig. 1-4,7,8 * --	1	B 65 H 51/20
A	US - A - 4 383 655 (AHRENDT) * Fig. 1-3 * --	1	
A	CH - A - 653 314 (RÜTI-TE STRAKE B.V.) * Fig. 1,2: page 2, lines 35-40 * --	1	
A	DE - A - 2 119 356 (SOBREVIN SOC. DE BREVETS INDUSTRIES) * Fig. 1-9 * ----	1	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

B 65 H 51/00
D 03 D 47/00
B 65 H 75/00

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
VIENNA	09-12-1991	BRÄUER

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