Feb. 15, 1949. R. BOUVET 2,461,586

UP-TWISTER

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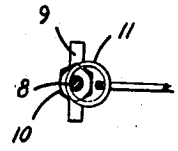


Fig. 2

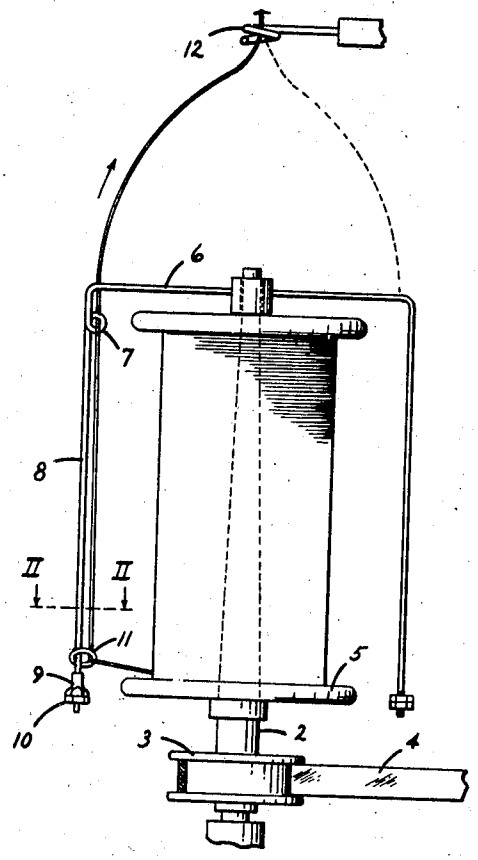


Fig. 1

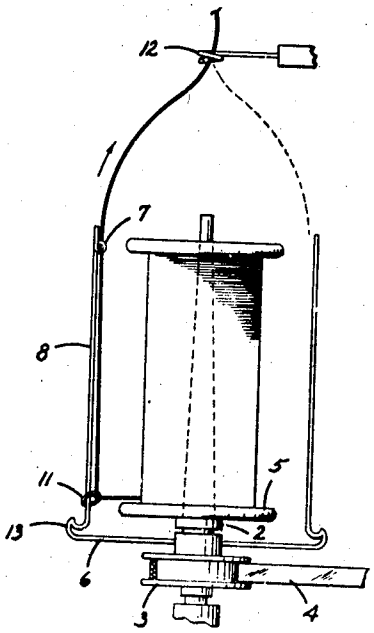


Fig. 3

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UP-TWISTER

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4 Claims. (Cl. 57—116)

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This invention relates to up-twisters and is particularly concerned with the modification of the flyer to provide more uniform tension upon the yarn or the like as it is withdrawn from the package carried on the spindle of the up-twister.

In conventional up-twisters, the flyer is provided with a stationary guide eye, generally near the top of the flyer and adjacent the uppermost end of the package on the spindle. The yarn proceeds directly from the windings on the outer convolution of the package through the stationary guide eye and, because of the various angles which the yarn makes with the package as it is withdrawn from the various parts thereof, the yarn undergoes a wide variation in tension as it unwinds from the lower to the upper portions of the package. To twist yarns wound upon long packages, the radius of motion of the guide eye can be enlarged by making the flyer larger, in order to reduce the angle that the thread makes with the lower end of the package when unwinding from the lower end. However, such enlarged flyers are unsatisfactory from the standpoint of cumbersomeness and space requirements and since they merely alleviate the condition without correcting it, they leave much to be desired.

In accordance with the present invention, the up-twister is provided with a flyer which has a lateral arm upon which a guide is freely slidably and rotatably mounted. The freely mounted guide is interchangeable with others so that it may be selected, particularly as to weight, for each size of yarn being twisted.

The invention is illustrated in the accompanying drawing in which

Figure 1 is an elevation,

Figure 2 is a plan view of a detail, and

Figure 3 is an elevation of a modification.

Referring to the drawing, the up-twister comprises a spindle 2 carrying a sheave 3 adapted to be rotated by a belt 4 driven by suitable means not shown. The rotatable spindle carries a spool 5 or other package of yarn and at its upper end carries a flyer 6. The flyer is rotatable upon the spindle 2 and has a stationary guide eye 7 near the upper end of the spool. The lateral arm 8 of the flyer, from which the eye 7 extends inwardly, preferably extends the full length of the spool and at its foot is provided with a streamlined detent or shoe 9 adapted to be screwed upon the end of the arm 8. A lock nut 10 may be provided to hold the shoe 9 in fixed position on the arm 8. A replaceable ring guide 11 has an inside diameter greater than the outside diameter of the arm and is mounted freely rotatable upon

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the arm 8 so that it may freely slide upwardly and downwardly thereon between the stationary guide eye 7 and the shoe 9.

In operation, the yarn is withdrawn through the ring 11 and then upwardly through the stationary guide eye 7 to a balloon controlling guide 12 above the twister. The arm 8 is free of obstruction along the full length of the package so that the ring guide 11 by virtue of its weight moves up and down the arm 8 of the flyer in response to the position of withdrawal of the yarn from the package. It will be seen that such movements of the ring 11 results in the maintenance of substantially constant tension upon the yarn withdrawn from the package regardless of the position from which it is withdrawn at any given moment. For different weights of yarn and for different degrees of twisting desired to be effected, a different weight of ring guide 11 should be used. In order to replace the guide 11 used with one particular weight of yarn or with one particular degree of twist, it is only necessary to release the lock nut 10 and remove both the shoe 9 and nut 10 from the arm 8.

Instead of supporting the flyer 6 from the spindle at a position above the package, it may be supported from the spindle beneath the package (as in Figure 3) so that the stationary guide eye 7 is at the top of the arm 8 and the ring 11 is arranged to move up and down beneath the stationary guide. In this embodiment, the ring 11 is slightly larger in diameter than the guide 7 so that it may pass over it for removal and replacement. Also, the juncture of the arm 8 with the horipontal portion of the flyer 6 is preferably provided with a reverse bend as at 13 to prevent the ring 11 from going around the bend to the correct horizontal portion of the flyer 6.

The present invention provides for more accurate tension control and allows the use of packages having a wide range of length including extremely long packages from which it has heretofore been impossible to up-twist. With the present invention, it is also possible by properly selecting the weight of slidable ring guide 11 to twist finer yarns under lighter and better controlled tension conditions so that there is less likelihood of damage from breakage and more uniformity of twist is obtained.

It is to be understood that changes and variations may be made without departing from the spirit and scope of the invention as defined in the appended claims.

I claim:

1. In an up-twister, the combination of a ro-

tatable spindle, means for rotating the spindle, a package carrier on the spindle, a flyer rotatably mounted on the spindle having a guide eye fixedly secured to an upper portion of the flyer and having an arm extending downwardly from said guide eye and being free of obstruction along the full length of the package, said guide eye being disposed inwardly of the arm, and a ring guide mounted on said arm for freely slidable and rotatable motion relative to the arm alongside the full length of the package, the inside diameter of the ring guide being greater than the outside diameter of the arm.

2. In an up-twister, the combination of a rotatable spindle, means for rotating the spindle, a package carrier on the spindle, a flyer rotatably mounted on the spindle having a guide eye fixedly secured to an upper portion of the flyer and having an arm extending downwardly from said guide eye, said eye being disposed inwardly of the arm, a ring guide mounted on said arm for freely slidable and rotatable motion relative to the arm alongside the full length of the package, the inside diameter of the ring guide being greater than the outside diameter of the arm, said arm extending alongside the package carrier and being free of obstruction substantially the full length thereof, and detent means on the flyer adjacent the bottom of said arm to limit the downward motion of the slidable guide.

3. In an up-twister, the combination of a rotatable spindle, means for rotating the spindle, a package carrier on the spindle, a flyer rotatably mounted on the spindle above the package carrier, said flyer having a guide eye secured to a portion thereof adjacent the upper end of the package carrier and having an arm depending from the stationary guide eye and being free of obstruction substantially the entire length of the package carrier, said eye being disposed inwardly of the arm, a ring guide mounted on said arm for freely slidable and rotatable motion relative to the arm alongside the full length of the package, the inside diameter of the ring guide being greater than the outside diameter of the arm, and removable detent means secured to the lower end of the arm to limit the downward travel of the slidable guide.

4. An up-twister in accordance with claim 1 in which the ring guide has an inside diameter somewhat greater than the outside diameter of the guide eye and the flyer is supported from its lower end.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,078,073	Toby	Nov. 11, 1913
1,757,653	Clements	May 6, 1930

FOREIGN PATENTS

Number	Country	Date
816,688	France	May 10, 1937