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G. H. SNIDER
YARN OR THREAD TWISTER
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2,523,338

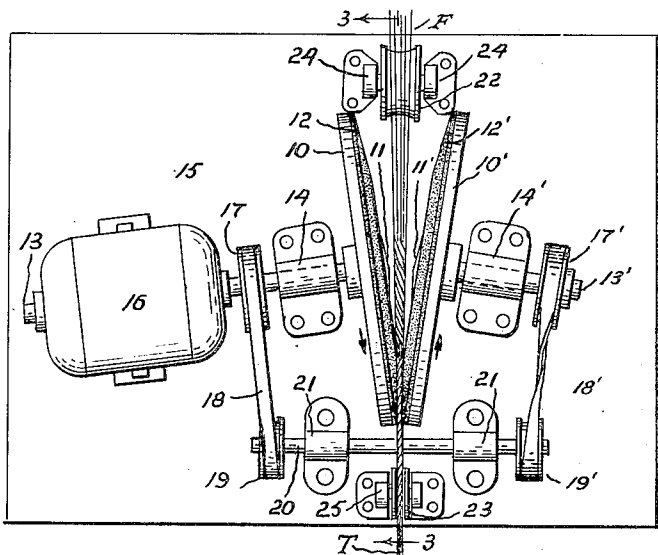


Fig. 1.

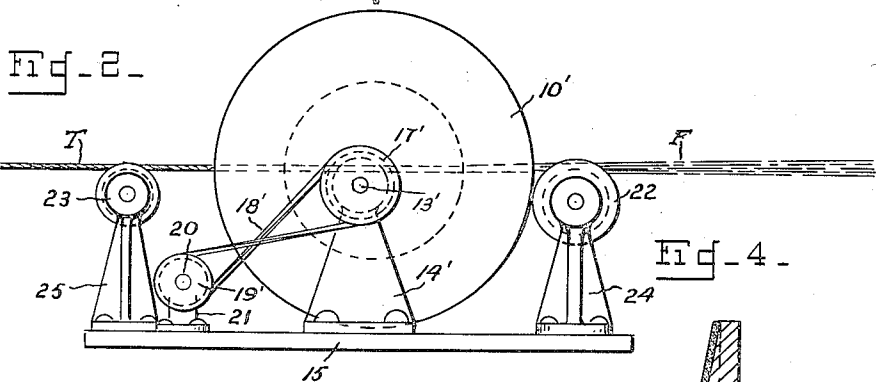


Fig. 3.

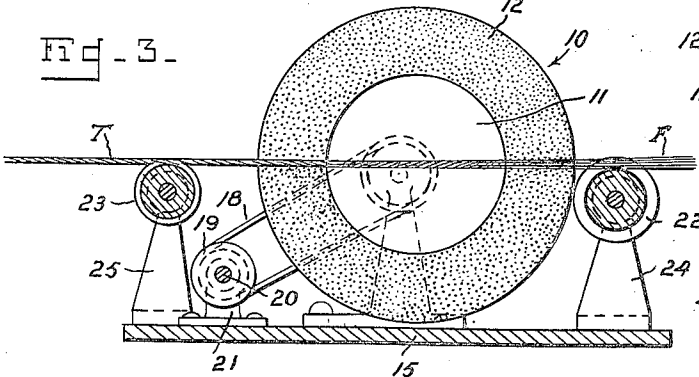
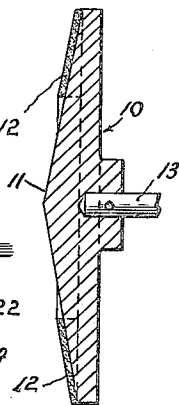


Fig. 4.



Inventor,

Gilbert H. Snider

By *J. J. J. J.* Atty.

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YARN OR THREAD TWISTER

Gilbert H. Snider, Pulaski, Va.

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1 Claim. (Cl. 57—58.5)

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This invention relates to devices for false twisting fibres into cords or the like, and more particularly to a small device that is adapted for mounting directly on spinning machines and false twisting filaments or fine strands into yarn or thread.

The presently employed twisting machines are too large and cumbersome to be applied directly to the spinning machines in a mill. Consequently, the filaments must be passed from the spinning machine to a twisting apparatus. This requires undesirable handling and equipment and, furthermore, the equipment is costly and inefficient.

Having in mind the defects of the prior art apparatus, it is an object of the present invention to provide a small false twisting device that is capable of mounting on a spinning machine to directly receive and false twist the filaments produced thereby.

It is another object of the invention to provide a yarn or threaded false twisting device that has simplicity of design, economy of construction and efficiency of operation.

The foregoing objects and others ancillary thereto are preferably accomplished, in accordance with a preferred embodiment of the invention, by a pair of slightly conical discs which are positioned with one portion of their conical faces in parallelism and are driven in opposite directions. The faces of the discs are preferably covered with a soft material, such as felt, that will grip but not damage the filaments during the twisting operation. The filaments are fed diametrically between the parallel portions of the discs so that they are engaged by the facings of the discs and twisted by the opposite movement of the discs.

The novel features that are considered characteristic of the invention are set forth with particularity in the appended claim. The invention itself, however, both as to its organization and its method of operation, together with additional objects and advantages thereof, will best be understood from the following description of a specific embodiment when read in connection with the accompanying drawing, wherein like reference characters indicate like parts throughout and in which:

Figure 1 is a plan view of a false twisting device according to the invention;

Figure 2 is an end view in elevation of the device;

Figure 3 is a cross-sectional view taken on

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line 3—3 of Figure 1 and showing the face of one of the twisting discs in elevation; and

Figure 4 is a cross-sectional view taken diametrically through one of the twisting discs.

Referring to the drawing, specifically to Fig. 1, a false twisting device, according to the present invention, comprises a pair of discs 10 and 10' which are substantially identical in size and shape. These discs have slightly conical faces 11 and 11' which, preferably, have facings 12 and 12' of a soft, matte material such as felt or the like. The facings 12 and 12' need not completely cover the faces 11 and 11' but, preferably, as best shown in Figs. 3 and 4, are in the form of rings whose outer peripheries coincide with the peripheries of the discs 10 and 10'.

The discs 10 and 10' are respectively fixed on shafts 13 and 13' which are journaled in bearing blocks 14 and 14' that are mounted on a base 15. The shafts 13 and 13' are driven in opposite directions and at the same rate of speed. This may be accomplished in any desired manner and one form may comprise, as best shown in Fig. 1, a motor 16 for driving one shaft, such as shaft 13, and means for transmitting and reversing the drive from the one shaft to the other. In this form the directly driven shaft 13 may comprise the shaft of the motor 16. Obviously, each of the shafts 13 and 13' may be driven by a separate motor, the two motors being synchronized to drive their respective shafts at the same rate of speed.

According to the drive shown in the drawings, pulleys 17 and 17' are respectively mounted on the shafts 13 and 13'. These pulleys 17 and 17' are connected by belts 18 and 18' respectively, with pulleys 19 and 19' mounted on a transmission shaft 20 which extends longitudinally of the base 15 and is journaled in bearing blocks 21 mounted on said base 15. One of the belts, as the belt 18', is crossed over in order to reverse the direction of the drive.

In view of the foregoing description, it will be seen that the motor 16 will drive the shaft 13 and, consequently, the disc 10 and pulley 17. The belt 18 will be driven by the pulley 17 and, in turn, will drive the pulley 19 and shaft 20. The pulley 19' is driven with the shaft 20 and drives the belt 18' which drives the pulley 17' and, consequently, the shaft 13' and disc 10'.

As the belt 18' is crossed over, the disc 10' will be driven in the opposite direction to that of the disc 10. Furthermore, as the pulleys 17 and 17' are of the same size, and the pulleys 19 and 19' are of the same size, the two discs 10 and 10' will be driven at the same rate of speed.

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The bearings 14 and 14' are so positioned on the base 15 that the discs 10 and 10' will have a corresponding portion of their conical faces 11 and 11' arranged in parallelism. In addition, the discs 10 and 10' are disposed so that the surfaces of the facings 12 and 12' are almost, but not quite, in contact.

The apparatus is then ready for operation, and filaments F, or the like, may be fed diametrically between the discs 10 and 10' to pass between and in contact with the closely adjacent parallel portions of the facings 12 and 12'. As the filaments F are contacted by the rapidly, oppositely moving facings 12 and 12' they are false twisted into a thread T. The facings 12 and 12' being of a soft matte material will not harm the filaments nor permit slippage therebetween.

In order to position the filaments F and false twisted thread T diametrically of the discs 10 and 10', idler guide rollers 22 and 23 may be journaled in bearings 24 and 25 which may be mounted on the base 15. The roller 22 may be adapted to accommodate the filaments F and the roller 23 may be in the form of a pulley to accommodate the thread T. These rollers 22 and 23 may be positioned on opposite sides of the discs 10 and 10' with their contacting surfaces in a plane that is diametrical of said discs. Obviously, these guide rollers 22 and 23 may be dispensed with in favor of other guide means or in the event that the spinning machine, on which the device may be mounted, is provided with suitable guide means.

It will be evident that the present invention provides a small compact apparatus of high efficiency that may be mounted directly on a spinning machine. Consequently, as the filaments are supplied by the spinning machine, they may be fed directly to the present false twisting apparatus and be immediately false twisted into yarn, thread or the like. While the present invention is most advantageous in use for false twisting thread or yarn, it is contemplated that it may also be adapted for false twisting heavier strands into cordage or the like.

Although a certain specific embodiment of the invention has been shown and described, it is obvious that many modifications thereof are

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possible. The invention, therefore, is not to be restricted except insofar as is necessitated by the prior art and by the spirit of the appended claim.

What is claimed as new, is:

A false twisting device, comprising a pair of discs, each having a slightly conical face, an annular member of soft matte material secured to each conical face and covering the peripheral portions thereof with the outer surface forming a relatively narrow thread engaging surface spaced outwardly from the conical face to preclude contact between the conical face and strands engaged by the member surface, means rotatably supporting said discs with their conical faces toward each other, said discs being disposed on angularly arranged axes to position a radial portion of their conical faces in parallelism and with the strand engaging surfaces of their respective annular members closely spaced to oppositely engage threads or strands therebetween, means diametrically adjacent the peripheries of said discs and aligned with the radially parallel faces for guiding a plurality of strands diametrically between the angularly spaced peripheral portions of said discs and the twisted thread from the parallelly adjacent peripheral portions of said discs with the strands passing between the closely spaced parallel surfaces of the annular members, and means for driving the said discs in opposite directions and at substantially the same rate of speed to twist the strands into yarn or thread.

GILBERT H. SNIDER.

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