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TWISTING MEANS

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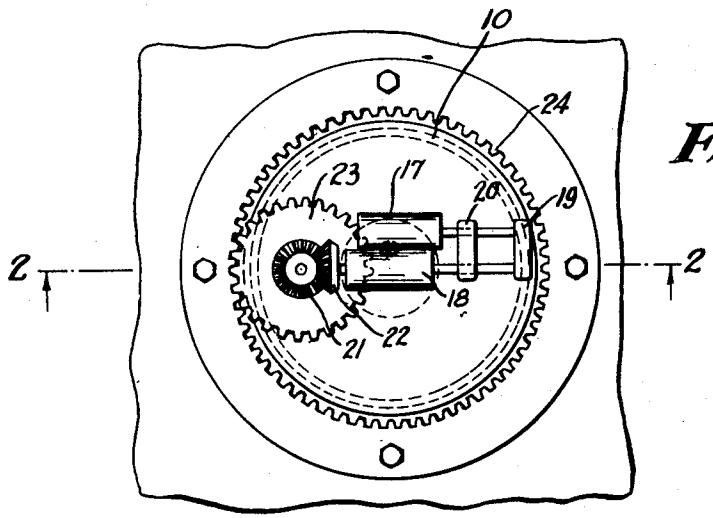


Fig. 1

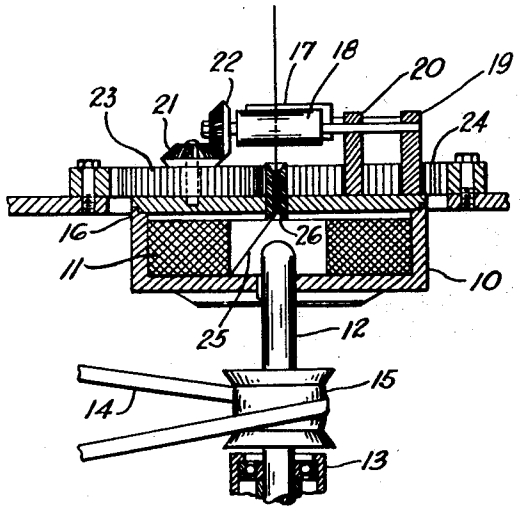


Fig. 2

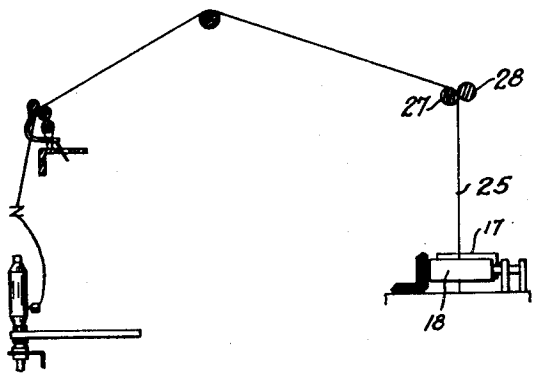


Fig. 3

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TWISTING MEANS

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2 Claims. (Cl. 57—59)

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This invention relates to improvements in twisting machines for rovings, yarns and the like and to a twisting method.

In the more recent developments of mechanical devices for the production of yarns from a roving, the trend has been toward the creation of a mechanism that will provide a true twist of constant pitch and one less likely to break the thread. The pitch of twist, of course, depends upon the rate of rotation of the roving, the linear rate at which the slightly attenuated thread thereat is withdrawn as well as the uniformity of tension therein. Variation in any of these factors will vary the pitch of the twist. Since the twist in the devices so far developed is imparted between the point of rotation and the delivery means, tension becomes a very important factor. Even if the rates of rotation of the roving and delivery means remain constant, the tension must vary as the diameter of the core grows progressively less. Attempts have been made to overcome these difficulties by adding relatively complicated drum breaking means, devices to take up the slack in the thread itself, and means to prevent frequent breaking of the thread.

It is an object of the instant invention to provide a thread twisting device for the roving wherein the imparting of a true twist and the drawing out or drafting are carried out simultaneously.

Another object is to provide a thread twisting device of simple construction and relatively carefree operation.

Another object is to provide a device that will impart a twist to the thread which has relatively uniform pitch.

A further object is to so design the device that the pitch of twist as well as the ratio of the draft can be altered with facility.

Other objects of the present invention will become apparent in the course of the following specification.

In attaining these objectives, the roving is inserted in a rotary drum which imparts the twist. However, in the instant invention, the delivery means is also rotated and the twist imparted between the delivery and the take up means. Thus according to the present invention, the delivery means is rotated at the same rate and in the same direction as the roving. Consequently, there is relatively no problem of tension caused by the diminution in the diameter of the roving core or spool. Further, by passing the thread from the roving through a sheave or opening and thence to the delivery means, the need for spindles as

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guides to lead the thread to the delivery means is eliminated along with the possibility of thread breakage resulting therefrom, and necessary rethreading.

The invention will appear more clearly from the following detailed description when taken in connection with the accompanying drawings showing by way of example a preferred embodiment of the inventive idea.

In the drawings:

Figure 1 is a plan view of the yarn twisting device according to the principles of the present invention.

Figure 2 is a perpendicular sectional view along the line 2—2 of Figure 1.

Figure 3 is a front elevational view of the twisting device showing the receiving means for the twisted thread and means for transmitting the same thereto.

Referring now in greater detail to the drawings in which like reference numerals indicate the like parts, reference numeral 10 indicates the hollow rotary drum in which the roving 11 is inserted. The hollow drum 10 is attached to and actuated by the shaft 12 which is inserted in the rotatably mounted bearings 13. The said shaft and drum are designed to be rotated by the belt 14 over the pulley 15. Obviously, other than pulley means could be used to impart the necessary rotation.

Over the hollow rotary drum 10 containing the roving 11, the circular cover 16 is disposed. Said plate serves as a base for the delivery means, preferably rollers 17 and 18 which are rotatably mounted on the supports 19 and 20. Rotation of said rollers is provided by the bevel gears 21 and 22, the latter being axially attached to and rotated with the gear 23, the teeth of the latter meshing with the teeth of the gear 24 which is stationary and within which and in the plane thereof the hollow drum 10 is rotated. The roller 17 may be driven from the roller 18 by friction or by any other suitable means. Obviously, as long as the speed of rotation of the hollow drum and delivery means is substantially the same and pull in the same direction, the delivery means could be rotated by other means. A change in the pitch of twist imparted to the thread may be accomplished by changing the speed of rotation of the drum 10 and by changing the gears. Any change in the drafting may be accomplished by changing the delivery gears or by changing the speed of the take up.

The thread 25 from the roving 11 is fed to the delivery rollers 17 and 18 over the sheave or open-

ing 26. Thence the thread 25 is taken up by the take up device which in the example illustrated consists of a pair of rollers 27 and 28. It is apparent that the drawing and the twisting can take place simultaneously in the illustrated construction and that the twisting takes place between the rollers 17, 18 and the rollers 27, 28. The twisted strand may be wound on a spool or it may be fed directly a spinning frame or a mule for further drafting or twisting.

It is apparent that the specific illustrations shown above have been given by way of illustration, and that the structures above described are subject to wide variation and modification without departing from the scope or intent of the present invention, all of which variations and modifications are to be included within the scope of the present invention.

What is claimed is:

1. A twisting apparatus, comprising a driving shaft, a fibre container axially aligned and connected to said driving shaft, supporting means for said driving shaft, means connected with said shaft for imparting rotary motion thereto, a fixed table with circular aperture formed therein, said aperture having gear teeth disposed around the periphery thereof, said fibre container comprising a cover, delivery rollers upon said cover, said fibre container further comprising means passing a strand from said fibre container through said cover and through said delivery rollers, at least one gear connected to said rollers and one gear disposed on the top surface portion of said cover imparting motion to said bevel gear, said gear meshing with the gear formed in said aperture of said fixed table.

2. In a twisting apparatus, comprising a driving shaft, a fibre container axially aligned and connected to said driving shaft, supporting means for said driving shaft, means connected with said shaft for imparting rotary motion thereto, a fixed table with circular aperture formed therein, said aperture having gear teeth disposed around the periphery thereof, said fibre container comprising a cover, delivery rollers upon said cover for continuously drawing strands of roving, said fibre container further comprising an opening formed substantially in the center of said cover, perpendicular to said cover, passing a strand from said fibre container through said cover and through said delivery rollers, the line of tangency of said rollers being substantially disposed at right angles to said opening, at least one gear connected to said rollers and one cooperating bevel gear axially aligned and attached to the top surface portion of a gear disposed to rotate on the top surface portion of said cover and mesh with the gear formed in said fixed table.

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