

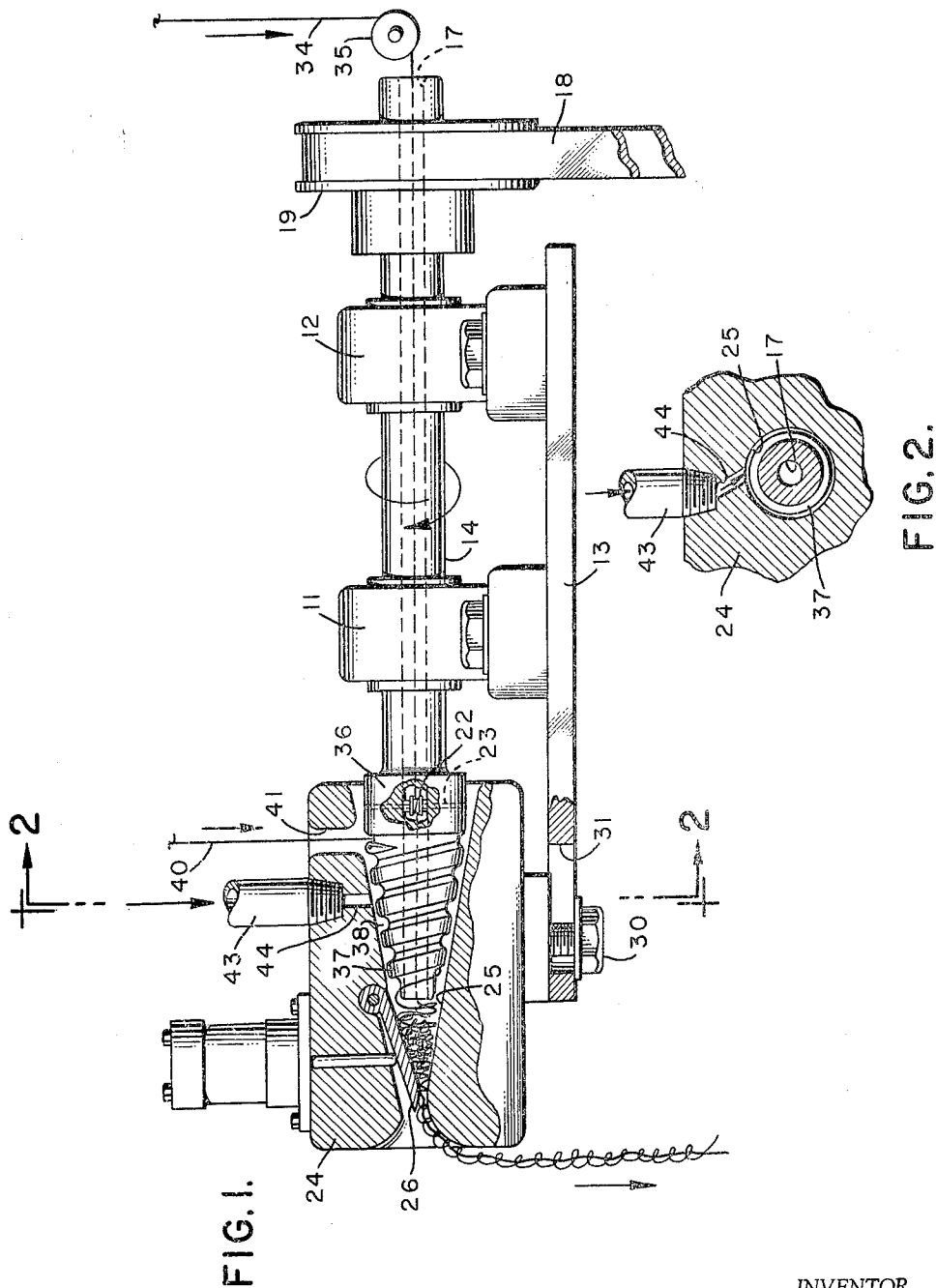
Nov. 16, 1965

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3,217,482

APPARATUS FOR TEXTURIZING YARN

Filed Aug. 30, 1963



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APPARATUS FOR TEXTURIZING YARN

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Filed Aug. 30, 1963, Ser. No. 305,735
5 Claims. (Cl. 57—6)

This is a continuation-in-part of my application Serial No. 54,287, filed September 6, 1960, for "Yarn Treating Apparatus," now abandoned.

This invention relates to apparatus for treating yarn and more particularly to apparatus for texturizing yarn.

It is sometimes desirable to provide a composite yarn which is made up of two different yarns texturized together which has a desired bulkiness as well as a desired resistance to tensile stresses. In the past it has been difficult to texturize a yarn carried by a core yarn or to simultaneously texturize or bulk two yarns to different degrees. With this in mind, one of the objects of this invention is to provide a novel and improved yarn texturizing or bulking device.

Another object of this invention is to provide an apparatus for simultaneously texturizing or bulking two different yarns.

A further object of this invention is to provide a device for simultaneously texturizing and combining two yarns which may be of different characteristics.

Still another object of this invention is to provide a device for texturizing a yarn supported by a core yarn.

Another object of this invention is to provide a device for simultaneously texturizing or bulking two different yarns to different degrees.

One embodiment of this invention may contemplate a rotating tube through which a first yarn is passed to a crimping or stuffing chamber. The rotating tube imparts a false twist to the first yarn. The end of the tube adjacent to the stuffing chamber terminates in an enlarged conical portion having a helical groove extending therealong. A second yarn fed into the helical groove at the larger end of the rotating enlarged portion is forced into the stuffing chamber and wound loosely around the first yarn so that the first yarn serves as a core yarn. Steam or a heated gas is admitted to the stuffing chamber to heat and soften the yarns for the texturizing operation.

Other objects and advantages of this invention will become apparent when the following detailed description is read in conjunction with the appended drawing, in which

FIGURE 1 is a partially sectioned front view of one embodiment of the invention showing the arrangement of the various elements of the device, and

FIGURE 2 is a sectional view taken on line 2—2 of FIGURE 1 showing the positioning of the gas inlet relative to the rotating portion of the device.

Referring now in detail to the drawing, a pair of bearings 11 and 12 adjustably secured to a base 13 are shown rotatably supporting an elongated shaft 14 having a longitudinal bore 17 extending therethrough. A belt 18 passing around a pulley 19 secured to the shaft 14 drives this shaft in a well-known manner. A false twist spindle or wheel 22 is rotatably mounted on a pin 23 extending transversely through the shaft 14 for rotation therewith.

A stuffing box or chamber 24 mounted adjustably on the base 13 is provided with a conical cavity or opening 25 which serves as a stuffing or crimping chamber, a clapper bar 26 being mounted at the exit opening of the cavity 25. A bolt 30 extends through a slot 31 in the base 13 to hold the stuffing box on the base and to provide for adjustment of the position of the stuffing box.

It can be seen that a first or core yarn 34 advanced around a roller 35 and through the bore 17 to the stuffing chamber 25 will be given a false twist by the rotating shaft 14, the yarn taking a turn around the wheel 22.

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This bulks the yarn 34 to a certain extent. The composite yarn is withdrawn from the stuffing chamber through a flared opening leading from the chamber 25.

The tubular shaft 14 is provided with an enlarged end or head 36 having a conical portion 37 extending into the stuffing chamber 25, the degree of taper of the portion 37 being equal to the degree of taper of the conical cavity 25. The conical portion 37 is provided with a helical groove 38 for receiving a second yarn 40 advanced through an opening 41 in the stuffing box and forcing this yarn into the stuffing chamber 25. The portion 37 is positioned sufficiently close to the walls of the chamber 25 that the yarn 34 remains in the groove 38 until it reaches the end of the groove. Steam or a heated gas is admitted to the stuffing chamber 25 through a pipe 43 for heating and softening the yarns to insure the success of the texturizing or bulking operation. The pipe 43 is connected to an inlet passageway 44 which is positioned to direct the gas stream tangentially against the head 36, as best shown in FIGURE 2.

In operation of the device, the shaft 14 is driven by the belt 18 to impart a false twist to the yarn 34 being advanced through the bore 17 into the stuffing chamber 25. The yarn 40 is advanced through the opening 41 into the helical groove 38 in the portion 37 of the shaft 14. Rotation of the shaft 14 forces the yarn 40 into the stuffing chamber 25, thereby performing the texturizing or bulking operation. Because of the rotation of the shaft 14, the yarn 40 is loosely wound around the yarn 34 which serves as a core in the composite texturized yarn.

The presence of steam in the stuffing chamber causes the yarns to become soft and to take on the crimp imposed by operation of the head 36 and the clapper bar 26. The bulked yarns are withdrawn past the clapper bar 26 and from the stuffing chamber 25 through the flared opening leading from the cavity 25.

It is to be understood that the embodiment disclosed herein may be modified or altered and that other embodiments may be contemplated which will fall within the spirit and scope of the invention.

What is claimed is:

1. A yarn texturizing device, comprising a base, a crimping chamber mounted on the base and having therein an exit opening, a tubular member rotatably mounted on the base and having one end extending into the crimping chamber, a false twist wheel rotatably mounted in the tubular member, means for rotating the tubular member for imparting a false twist to a first yarn advanced to the crimping chamber through said tubular member, said one end of said tubular member having a helical groove therein for receiving a second yarn and advancing said second yarn into the crimping chamber in a wound relationship with the first yarn, means in the chamber for restricting the exit of the yarns therefrom, and means for applying a heated fluid to the yarns in the chamber.

2. A yarn texturizing device, comprising a base, a crimping chamber adjustably mounted on the base and having a tapered cavity and an exit opening therefrom, a tubular member rotatably mounted on the base, a false twist wheel rotatably mounted in the tubular member, means for rotating the tubular member to impart a false twist to a first yarn advanced through the tubular member to the cavity in the crimping chamber, said tubular member having a tapered and enlarged end portion positioned in the crimping chamber, said enlarged end portion having a helical groove extending therealong for receiving a second yarn and advancing said second yarn into the cavity in the crimping chamber in a wrapped relationship with the first yarn, means in the chamber for restricting the exit of the yarns therefrom, and means for applying a heated fluid to the yarns in the chamber.

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3. A yarn texturizing device, comprising a base, a crimping chamber mounted on the base and having a conical cavity and an exit opening therefrom, a tubular member rotatably mounted on the base and having a conical end portion, a false twist wheel rotatably mounted in the tubular member, means for rotating the tubular member to impart a false twist to a first yarn advanced through said member to said cavity, said conical end portion having therein a helical groove for receiving a second yarn and carrying said second yarn into the conical cavity in a wrapped relationship with the first yarn, means for applying a heated fluid to the yarns in the cavity for softening said yarns, and means in the chamber for restricting the exit of the yarns therefrom.

4. An apparatus for treating yarns, comprising a base, a rotatable tube mounted on the base and having therein a central bore, said central bore having therein a false twist wheel, means for rotating the tube, means for directing a first yarn through the tube, said tube having on the end thereof an enlarged conical portion having therein a helical groove for receiving and feeding a second yarn into wrapped relationship with the first yarn, means on the base forming a conical chamber surrounding said enlarged portion for receiving the yarns, said chamber having therein an exit opening, and a clapper bar mounted in said exit opening for restricting the exit of the yarns therefrom.

5. An apparatus for treating yarns, comprising a base, a chamber mounted on the base and having therein a conical cavity, a conical head rotatably mounted on the

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base and positioned in the cavity, said head having therein a central bore and a helical groove, said groove being in the outer surface of said head, and a false twist wheel mounted in said central bore for applying a false twist to a first yarn passing through said central bore, said helical groove receiving a second yarn for the feeding thereof into wrapped relationship with the first yarn, said cavity having an exit opening for the discharge of yarns fed into said cavity through said helical groove and said central bore, said chamber having a clapper bar mounted thereon in a position to restrict said discharge.

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