

Filed May 9, 1956

DEVICE AND METHOD FOR CRIMPING FULLY SYNTHETIC THREADS AND THREAD STRANDS

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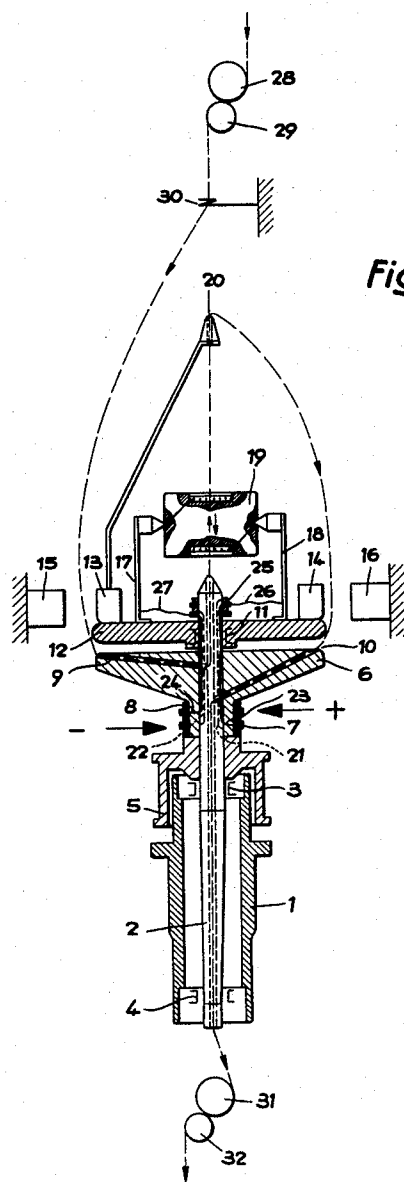


Fig. 1

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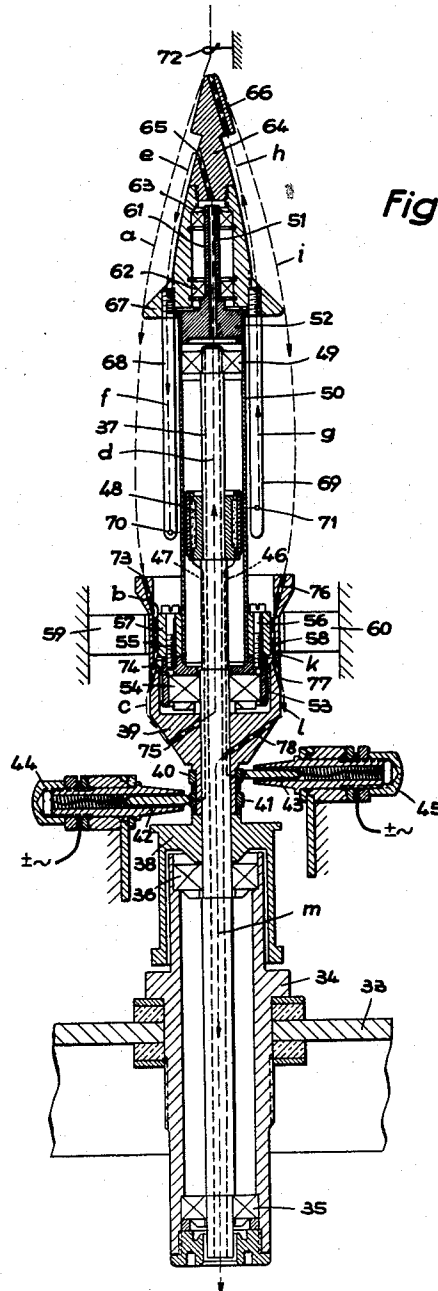


Fig.2

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Filed May 9, 1956

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DEVICE AND METHOD FOR CRIMPING FULLY
SYNTHETIC THREADS AND THREAD STRANDS

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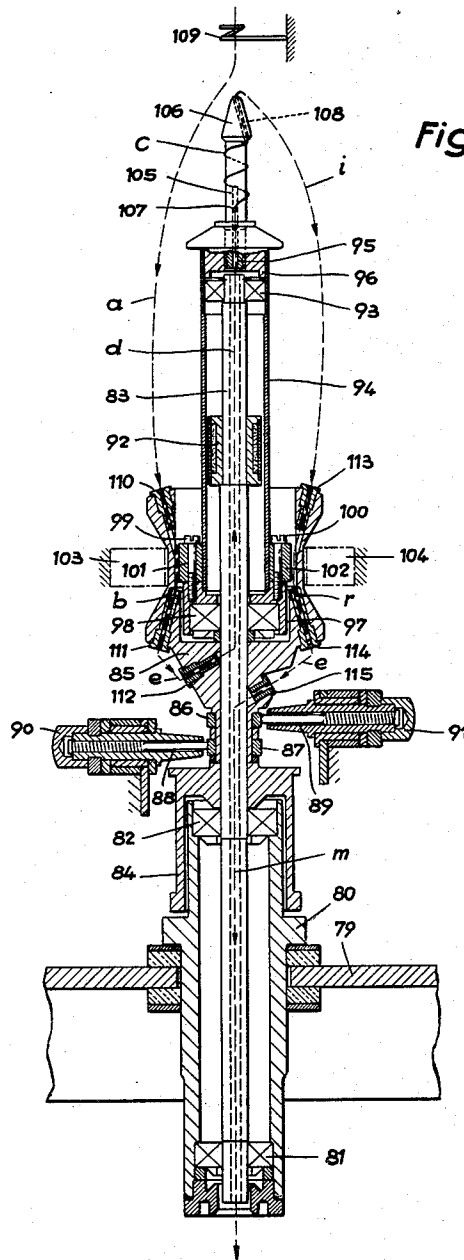


Fig. 3

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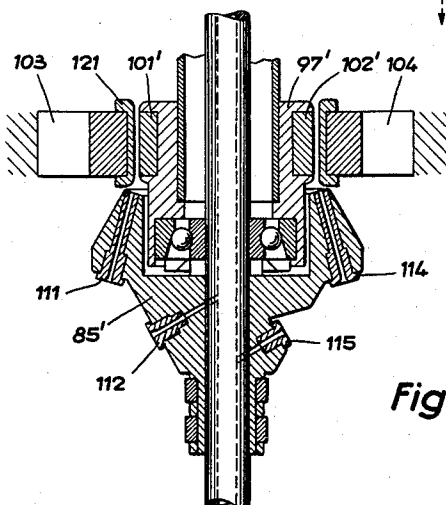
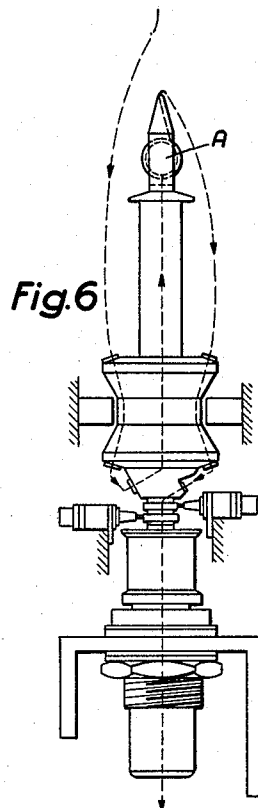
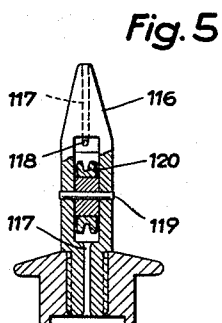
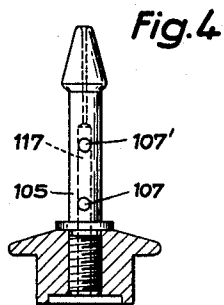
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2,959,906

Filed May 9, 1956

5 Sheets-Sheet 4



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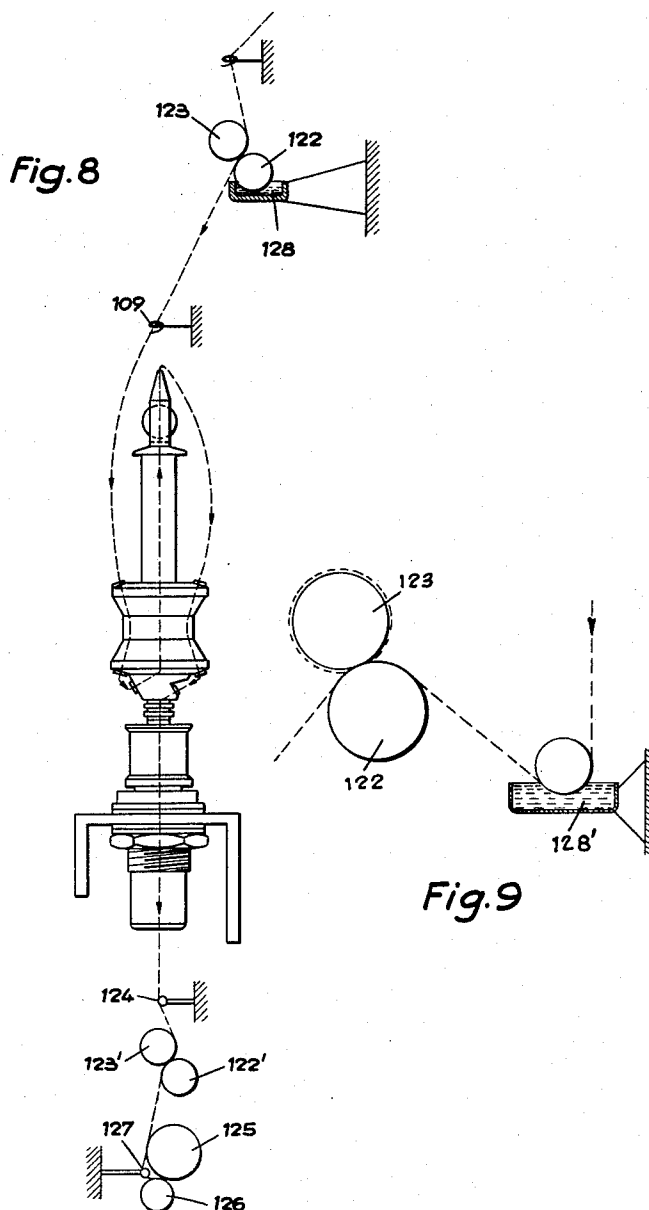
Nov. 15, 1960

Filed May 9, 1956

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2,959,906

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2,959,906

DEVICE AND METHOD FOR CRIMPING FULLY SYNTHETIC THREADS AND THREAD STRANDS

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Filed May 9, 1956, Ser. No. 583,747

Claims priority, application Germany Sept. 19, 1955

12 Claims. (Cl. 57—34)

The present invention relates to a method of crimping fully synthetic threads or filaments or strands composed of threads or filaments or yarn spun from synthetic staple fibre, which latter may be mixed with natural fibre material. A method of the type indicated has for its object to impart to the individual filaments, preferably polyamide filaments, a crimp of such a degree that it is possible to stretch such filaments when in a tension-free condition to between twice and a higher multiple of the length they have in their natural state, the said crimp also serving to impart to the filaments an extremely high degree of bulk or voluminosity whereby the filaments are contracted or coiled to give the appearance of a cross-sectional area which in most cases is a multiple of the actual cross-sectional area of the filaments.

According to the invention, the drawbacks and difficulties involved in the use of known false-twisting devices are eliminated by the provision of a method of crimping fully synthetic filaments or strands of filaments or yarn spun from synthetic staple fiber which may be mixed with natural fiber material, whereby the thread or yarn is continuously introduced into a two-for-one twisting device adapted to impart to the yarn a high degree of twist, the yarn being fixed within the said two-for-one twisting device and then discharged from said device while at the same time the false twist is removed from the yarn. In a specific embodiment of the invention, the fixing of the highly twisted thread may be carried out by having the thread repeatedly pass around a heating drum. According to another feature of the invention, the thread is fixed while it is under an additional tension. Using the method of the invention it is possible, when the same rotary speeds are used as in the case of known methods, considerably to reduce the time required per turn of twist. Nevertheless, the method of the invention produces the same twisting effects and satisfactory crimped threads which are equivalent to crimped threads produced by the aforementioned known method.

An advantageous embodiment of a device adapted to carry the method of the invention into effect is characterized by the fact that the continuous filaments or threads are introduced into the hollow interior of a spindle by way of a base member which is rigid with the spindle, that the threads are then passed through a central bore in the upper portion of a cylindrical central member, which member is held in position by magnetic means, to a head piece which is rotatable on the latter, the said head piece having an inclined bore serving to guide the threads to the exterior of the head piece, the threads then passing along the head piece in a downward direction into the bore of a pin-shaped winding member serving to wind the threads onto a winding core, whereupon a similarly constructed pin-shaped unwinding member, which is mounted diametrically opposite the winding member on the said head piece, unwinds the threads from the winding core, whereby the threads are passed through a bore, which is located opposite the winder bore and vertically spaced therefrom, upwardly to the top of the

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head piece, where an inclined bore terminating at the center of the tip of the head piece serves to conduct the threads downwardly and again through the base member and the hollow spindle, whence the threads leave the unit in a downward direction. In the case of specific embodiment of the invention, the said head piece may be provided with a guide collar for guiding the threads to and from the winding core, for which purpose said collar has diametrically extending bores. Furthermore and also according to the invention, the base member may be of cup-like formation and may carry on its periphery suitable magnets serving to locate the central member diametrically in relation to the axis of the unit.

Furthermore, the present invention is concerned with still another improvement and simplification of the afore-described device for the continuous crimping of threads or filaments, particularly of continuous synthetic filaments, which device comprises a hollow spindle member, a base member rigidly secured to said spindle member and having thread guide bores terminating in the said spindle member, a central member held in position by magnetic means and receiving a heater element located on the spindle member, and a head piece having guide bores for the discharge of the thread from the hollow spindle member, which device is characterized according to the invention by the fact that said head piece is fixedly located immediately above said central member and constitutes the central fixed point for the path of the thread. In a particularly advantageous embodiment of the invention the said head piece takes the form of a rod or bar having an axial bore extending throughout its length and having in its central portion a longitudinal recess in which a freely movable roller of small size is located. In the case of a specific embodiment of the invention the device may be characterized by a reduced length of the said base member, which is merely constituted by a lower part having four bores, and by a balloon guide ring. Thus, the invention provides for a considerable simplification of the device as such and of the geometry of the thread path as compared with the method and device of the parent patent, without the permanence of the crimp produced thereby being adversely affected in any way whatever. Moreover, the device of the invention may be constructed to have a smaller overall height, this tending to reduce the length of the balloon and to decrease thread tension, with the result that the rotary speed of the device may be increased.

According to still another feature of the invention, a liquid-filled container is provided through which the thread is passed for moistening it before it is fed to the crimping device. The thread to be crimped may be passed through a liquid bath before it enters the crimping spindle, preferably even before it enters the feed mechanism. In the case of a different embodiment, one cylinder of the feed mechanism is partly immersed in a fluid bath, so that the thread is also indirectly moistened by the pressure roll. Moistening the thread prior to its entry into the crimping device tends considerably to improve the intensity of the crimping action as well as the elasticity of the crimped threads.

The above and other objects of the invention will become further apparent from the following detailed description, reference being made to the accompanying drawings, showing preferred embodiments of the invention:

Fig. 1 is a side elevational view in section of one embodiment of the device according to the invention;

Fig. 2 is an enlarged side elevational view in section of another embodiment of the device according to the invention;

Fig. 3 shows a side elevational view of still another embodiment of the device according to the invention;

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Figs. 4 and 5 show, partially in section, different headpieces which can be employed with the device;

Fig. 6 shows diagrammatically the device constructed with the headpiece of Fig. 5, and further discloses the path of the thread;

Fig. 7 is a sectional view showing details of the base member;

Fig. 8 shows diagrammatically the arrangement of the thread advancing mechanism; and

Fig. 9 illustrates one form of the moistening unit which is employed with the device.

The double-twisting device illustrated in Fig. 1 comprises a bearing housing 1 which is supported from the twister frame (not shown), and a spindle 2 having an axial bore extending throughout its length and supported within the housing 1 by suitable antifriction bearings 3 and 4. Mounted on the spindle are the driving rotor or whorl 5 and the twisting member 6. The twisting member 6 has a downwardly extending cylindrical projection carrying a pair of slip rings 7 and 8 which are contacted in a known manner by associated carbon brushes which, in turn, are connected to a source of electric current. The upper portion of the twisting member has formed therein two bores 9 and 10 both of which terminate in the axial bore of the spindle.

The spindle 2 carries another antifriction bearing 11 which is arranged a short distance above the twisting member and which supports a central member or rotatable platform 12. The platform 12 carries two soft-iron segments 13 and 14 which are under the influence of a pair of associated stationary magnets 15 and 16. In addition, the platform 12 carries a pair of supporting brackets 17, 18 for a drum-shaped heating element 19, and a headpiece or thread guide assembly 20.

The drum 19 may be heated either by means of current derived from a battery, or, as shown in Fig. 1, by means of electric current conducted to the drum from the slip rings 7 and 8 by conductors 23 and 24 embedded in suitable external longitudinal grooves 21 and 22 formed in the spindle 2 and connected to associated slip rings mounted on the upper end of the spindle above the platform 12, one of said last-mentioned slip rings being indicated by the reference numeral 25. Connected to the slip rings are additional conductors 26 and 27 which supply the electric current to the heating element of the drum 19 for heating the latter. From a feed mechanism, which comprises a feeder cylinder 28 and a pressure roll 29, the thread to be crimped is led through a stationary eyelet or pigtail guide 30 to the double-twisting device. After passing said pigtail guide, the thread enters the bore 9 of the base or twisting member 6, emerges from this bore within the spindle 2 and advances upwardly therethrough towards the heating drum 19, whereby the thread in its passage along the path indicated is subjected to a two-for-one twisting action. The thread which is thus given a high degree of twist is passed once or twice around the heating drum 19, whereby it is fixed within the double-twisting device. It will be appreciated that this arrangement makes it possible to control in a desired manner the duration of the fixing step by having the heating drum surrounded by a suitable number of thread turns. The thread in which the crimp has been fixed by heating is then withdrawn from the double-twisting device by another feed mechanism which again comprises a feeder cylinder 31 and a pressure roll 32, the fixed thread passing through the headpiece or thread guide 20 and downwardly through the inclined bore 10 of the twisting member 6 and finally through the hollow spindle to emerge at the lower end thereof, whereby the twist initially imparted to the thread is removed by counter-twisting.

The double-twisting device just described is driven in a manner known from conventional spinning and twisting spindles, the spindle receiving its drive by means of the driving rotor or whorl 5 attached thereto.

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The tension of the twisted thread to be crimped may be brought to a predetermined value by means of a tapered or stepped cylinder, said value being relatively high, if desired, that an additional draft is imparted to the thread. The heating drum may be driven for rotation either by the frictional contact between the drum and the thread or by other suitable means.

Fig. 2 illustrates another embodiment of the invention in which the twister frame 33 supports a bearing housing 34. Within the upper and lower end portions, respectively, of the bearing housing 34 there are disposed the antifriction bearings 35 and 36 in which the spindle shaft 37 is carried for rotation. The spindle shaft has an axial bore extending throughout the length of the spindle shaft.

Fixedly mounted on the spindle shaft 37 are the driving whorl 38 and the cup-shaped base member 39. The base member 39 has a downwardly projecting cylindrical extension carrying a pair of slip rings 40 and 41 which are in frictional contact with associated carbon brushes 42 and 43 which are, in turn, connected to the terminals 44 and 45. From the slip rings 40 and 41 there extend conductors 46 and 47 which are disposed in external longitudinal grooves of the spindle 37 and lead to a heating element 48 which is rigidly secured to the spindle and can be heated by the electric current passed through the said conductors.

The upper free end of the spindle 37 carries an antifriction bearing 49. The outer race ring of this bearing is secured to a hollow cylindrical winding core 50 which is heated by the heating element 48. The upper free end of said winding core 50 supports the upper member 52 of the central portion of the device, said upper member having a central bore 51. The lower free end of the winding core 50 carries the housing 53 for the antifriction bearing 54. The housing 53 carries a pair of soft-iron segments 57 and 58 which are attached to the housing by means of screws 55 and 56. These segments are acted upon by the stationary magnets 59 and 60.

The upper central member 52 has an upwardly projecting tubular extension 61 having a central bore 51, this extension carrying a pair of antifriction bearings 62 and 63. These antifriction bearings rotatably support a head piece 64 which has formed the inclined bores 65 and 66 therein, and which supports from its guide collar 67 the pin-shaped winding member 68 and the pin-shaped unwinding member 69. These pin-shaped members each have a bore 70 and 71, respectively, at their lower ends. Provided in the guide collar 67 on either side of the threaded holes into which the threaded ends of the winding members are screwed are bores (not shown) serving to guide the thread in a manner yet to be described.

The stationary pigtail guide 72 serves to introduce into the device at least two synthetic threads or filaments which are drawn off from the feed mechanism. The guide collar 67 of the head piece 64 serves to form the first section *a* of these threads into a balloon which is held at a certain distance from the pin-shaped winding and unwinding members 68 and 69. This section *a* of the threads enters the inclined bore 73 of the base member 39 and continues within the base member in the form of a section *b* until it emerges from the inclined bore 74 of the base member to form a section marked *c*. The section *c* of the threads then enters the bore 75 of the base member 39 and passes, in the form of a section indicated at *d*, through the hollow spindle shaft and the central bore 51 of the upper member 52 of the magnetically restrained cylindrical central portion of the device, whence the threads enter the inclined bore 65 of the head piece which is rotatably carried by the said cylindrical central portion. At *e* the threads emerge from the bore 65 and pass through one of the aforementioned bores provided on either side of the threaded ends of the pin-shaped winding member 68 and extending through the guide collar 67, from which the threads emerge at *f* and continue in a path parallel to the pin-shaped winding member 68 to the bore

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70 provided therein. The threads emerging from the bore 70 will then be wound onto the heated winding core 50 of the central portion of the device, whereafter the threads are unwound from the winding core by the pin-shaped unwinding member 69, leaving the latter at *g*. The threads then pass through one of the two bores provided on either side of the threaded end of the pin-shaped unwinding member 69 in the guide collar 67 from which they emerge in the form of the section *h* and continue upwardly towards the inclined bore 66 at the top of the head piece 64. The bore 66 terminates at the top of the head piece 64 on the axis of the latter. After passing this bore, the threads, now designated with the letter *i*, continue downwardly towards the inclined bore 76 in the upper or collar portion of the base member 39. The bore 76 is disposed diametrically opposite the bore 73 mentioned earlier. Now the threads continue in the form of the section *k* within the base member 39 from which they emerge through the inclined bore 77. The emerging section *l* of the threads first travels for a short distance past the outside of the base member 39 and finally again enters the latter through the inclined bore 78, whereupon the threads form the section *m* which is withdrawn from the interior of the spindle 37 in a downward direction.

The device just described is driven by means of a driving whorl 38 in a known manner in connection with conventional spinning and twisting spindles. It will be understood that the threads to be crimped will be threaded through the device before starting operation, so that the abovementioned sections *a* to *m* are in position when the device is started. As has been mentioned earlier, the central portion of the device, particularly the winding core 50, which forms a part thereof, is held in position by the magnets 59 and 60. It will thus be seen that while the base member 39 rotates, the only additional part to rotate is the head piece 64 the rotary speed of which is, however, considerably lower than that of the base member 39. The rotary speed of the head piece is determined by the rate at which the threads passing the device are drawn off the supply package.

Fig. 3 illustrates another embodiment of the invention comprising a bearing housing 80 which is supported from the spindle frame 79. Disposed within the bearing housing at its upper and lower ends, respectively, are two anti-friction bearings 82 and 81 which rotatably support the spindle shaft 83 which has an axial bore extending throughout its length.

The spindle shaft 83 carries a driving whorl 84 and a cup-shaped twisting or base member 85 both of which are rigidly secured to the spindle shaft. The base member has a downwardly extending cylindrical projection carrying a pair of slip rings 86 and 87 which are electrically connected to electric cable terminals 90 and 91 by way of carbon brushes 88 and 89. Suitable conductors extend from the slip rings 86 and 87 through external longitudinal grooves (not shown) in the spindle 83 to a heating element 92 which is rigidly secured to the spindle and is adapted to be heated by electric current supplied to it.

Mounted on the upper free end of the spindle 83 is an anti-friction bearing 93 of which the outer race ring is connected with the hollow cylindrical central member 94. Thus, the heating element 92 will heat both the spindle shaft 83 and the said central member 94. The free upper end of the central member 94 carries the upper member 96 of the device which has a central bore 95 formed therein. The free lower end of the central member or winding core 94 carries a housing 97 for another anti-friction bearing 98. Mounted on the housing 97 with the aid of screws 99 and 100 are soft iron segments 101 and 102, respectively. These segments are acted upon by the stationary magnets 103 and 104. Up to this point in the description, the construction of the device is identical with that of the device described previously.

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The upper member 96 of the device carries a head piece which takes the form of a rod 105 having an enlarged tapered head portion 106 and an axial bore which extends over at least part of the length of the member 105. Provided in the lower portion of the rod 105 is a radial bore 107 through which the thread passes from the interior of the spindle shaft 83 to its exterior. Formed in the pointed portion 106 of the rod is a bore 108 extending parallel to the outer surface of portion 106 and serving to guide the thread.

To operate the device just described, one or more synthetic threads are led to the device from a feed mechanism through a stationary pigtail guide 109. The first section of the threads shown at *a*, after forming a balloon, passes through the inclined bore 110 in the base member 85, the threads then continuing in the form of a section *b* within the base member from which they emerge through the inclined bore 111 provided in said base member, the emerging portion of the threads being shown at *c*. The threads then enter the bore 112 in the base member 85 to pass upwardly along the bore of the spindle shaft 83, the threads here forming a section *d* which continues through the central bore 95 of the upper member 96 of the magnetically restrained cylindrical central portion or winding core 94, whence the threads pass into the head piece 105, 106 which is rigidly secured to the winding core 94. The threads then pass outwardly through the radial bore 107 and are wrapped once or twice around the rod member 105, thus establishing a third fixed point in the path of the threads, whereafter the threads are passed through the bore 108 which extends parallel to the outer surface of the pointed member 106. The threads emerging from the bore 108 at a point located in the axis of the device form a balloon-shaped section *i* and then enter into the inclined bore 113 in the upper portion or collar of the base member 85. The bore 113 is disposed diametrically opposite the aforementioned bore 110. The threads continue through the interior of the base member 85 as a section shown at *r* until they emerge from the base member through the inclined bore 114 which is disposed diametrically opposite the aforementioned bore 111. The section *e* of the threads moving along the outer surface of the base member 85 finally again enter into the latter through an inclined bore 115, and from the inner end of said bore 115 the threads pass into and through the bore of the spindle 83 from which they are withdrawn in a downward direction.

The device is driven by means of the driving whorl 84 in substantially the same manner as a spinning or twisting spindle. It will be understood that the threads to be crimped are threaded into the device before operation is started so that the above-mentioned sections *a* to *m* are already formed when the device is started. As has been mentioned earlier, the central portion 94 of the device is held in position by the magnets 103 and 104. Besides the rotating base member 85, the rotating parts comprise the spindle shaft 83, the heating element 92 and the whorl 84.

Fig. 4 illustrates a modified embodiment of the head piece for a device according to the invention, this head piece differing from the construction shown in Fig. 3 only in that the rod member 105 has formed therein an axial bore 117 extending throughout the length of the rod, and two radial bores 107, 107'. In this embodiment, the radial bore 107' takes the place of the bore 108 (Fig. 3) in the head portion 106, which bore 108 extends parallel to the outer surface of the head portion 106. In the case of the embodiment of Fig. 4, the thread leaves the hollow spindle shaft 83 through the bore 95 (Fig. 3) and continues through the bore 117 from which it emerges through the bore 107; after emerging from the last-mentioned bore, the thread is wrapped one or more times around the rod 105, and is then passed into the bore 107' to return into the axial bore 117, the thread

then continuing upwardly through this bore to emerge at the tip of the rod member, whence the thread is returned to the base member 85 in the manner described in connection with Fig. 3.

Fig. 5 shows another modified embodiment of the head piece 116 of a device according to the invention, which head piece is also formed in the general shape of a rod. This head piece has an axial bore 117 extending throughout the length of the head piece, and it also has formed in its central portion a longitudinal recess 118 through which extends a transverse axle 119 carrying a freely rotatable roller or pulley 120, which roller or pulley in this embodiment constitutes the intermediate fixed point in the path of the thread. Again the threads emerge from the hollow spindle 83 and pass through the lower portion of the axial bore 117 of the rod-shaped head piece 116, after which the threads are wrapped one or more times about the pulley 120, whereupon the threads continue, in the manner described in connection with Figs. 3 and 4, through the upper portion of the axial bore 117 to the tip of the head piece, from which point the threads are again passed downwardly to the aforementioned base member. While the pulley 120 rotates only relatively slowly at a rate depending on the speed of travel of the threads, all other parts rotate with a higher speed of, say, 12,000 r.p.m.

Fig. 6 shows the thread path in the case of a device constructed according to Fig. 5, which thread path comprises the individual sections *a*, *b*, *c*, *d*, *i*, *k*, *l* and *m* mentioned earlier. Where desired, the thread balloons formed in the regions *a* and *i* may be restrained in a known manner by the provision of a balloon guide ring as is customary in the case of conventional twisting or spinning spindles, to reduce thread tension. In the case of certain synthetic threads, this may be of advantage.

Fig. 7 illustrates a modified embodiment of the device of the invention; this embodiment is identical with that of Fig. 3, except for the fact that the base member 85 is of reduced axial length. In Fig. 7, the base member comprises only a lower portion 85' incorporating the bores 111, 112, 114 and 115 described in connection with the embodiment of Fig. 3. The said bores are provided in exchangeable inserts. The upper portion of the base member 85 has here been replaced by a balloon guide ring 121 which surrounds the housing 97' and which is rigidly secured to the magnets 103 and 104. Thus an annular gap is formed between the inside diameter of the balloon guide ring and the outside diameter of the housing 97', through which gap the thread is guided. Within the region of the thread path, the housing 97' is formed as a closed cylinder. The housing is conveniently made in the form of a casting, for example in the form of a light-metal die casting. The soft-iron segments 101' and 102' are fused to the housing during the casting process, with the result that the fastening screws 99 and 100 shown in Fig. 3 may be dispensed with. The reduction in axial length of the base member greatly facilitates its manufacture, since the necessarily very thin wall in the region of the thread section *b* in Fig. 3 can be omitted. The base member may also be manufactured as a plastic injection molding.

Fig. 8 illustrates the arrangement of the various thread-advancing mechanisms. The mechanism serving to feed the thread to the crimping device comprises a feed cylinder 122 and a pressure roll 123. The mechanism serving to withdraw the thread from the crimping device comprises a thread-advancing cylinder 122' and a pressure roll 123'. Arranged between these mechanisms and the crimping device are a pigtail guide 109 and a thread guide 124, respectively. Fig. 8 also shows the friction drum 125 driving the yarn package 126 formed on suitable take-up means. A reciprocating thread guide 127 cooperates with the friction drum 125 to form any desired type of yarn package, such as a cross-wound coil. Arranged below the feed cylinder 122 is reservoir 128

for a thread moistening liquid. Moistening liquid is transferred to the thread directly by the feed cylinder and indirectly by the pressure roll, with the result that the entire surface of the thread passing this mechanism is wetted.

Fig. 9 illustrates a modification of the moistening unit. In this case the liquid reservoir 128' is arranged in such a manner that the thread is moistened according to known practice before it passes through the feed mechanism.

It will be understood that modifications and variations may be effected without departing from the spirit and scope of the novel concepts of the present invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In a device for crimping yarns and other textile materials moving in a predetermined path; a housing, a rotatable spindle having an axial bore extending throughout its length supported by said housing, a twisting member fixedly secured to said rotatable spindle for rotation with the latter, a driving whorl in registry with said twisting member, means operatively connected to said twisting member to impart rotational movement to the same, whereby said yarn while moving through said bore has imparted thereto upon rotation of said twisting member a crimp, whereupon the voluminosity and handling properties of said yarn are enhanced, said twisting member being provided with bore means terminating adjacent said spindle bore, to thereby define a passageway for movement of said yarn from a supply source into said spindle bore.

2. A device for crimping yarns and other textile materials supplied from a source, and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to the same, a central member supported by said spindle, a rotatable headpiece disposed adjacent said central member, a heater element in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said twisting member being provided with diametrically opposed bore means communicating with said longitudinal bore of said spindle to define a passageway for movement of said yarn from said source to said spindle, thereafter to said headpiece and then back into said spindle, a balloon guide ring carried by said drive means, said balloon guide ring being spaced from said housing to thereby form a passageway for the yarn.

3. A device for crimping yarns and other textile materials supplied from a source, and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to the same, a central member supported by said spindle, a rotatable headpiece disposed adjacent said central member, a heater element in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said twisting member being provided with diametrically opposed bore means communicating with said longitudinal bore of said spindle to define a passageway for movement of said yarn from said source to said spindle, thereafter to said headpiece and then back into said spindle, a liquid reservoir disposed in said path of movement of said yarn to thereby imbue said yarn with a moistening liquid.

4. A device for crimping yarns and other textile materials supplied from a source, and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said

housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to the same, a central member supported by said spindle, a rotatable headpiece disposed adjacent said central member, a heater element in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said twisting member being provided with diametrically opposed bore means communicating with said longitudinal bore of said spindle to define a passageway for movement of said yarn from said source to said spindle, thereafter to said headpiece and then back into said spindle, a reservoir for a moistening liquid disposed adjacent said path of movement of said yarn, pulley means adjacent said reservoir, at least one of said pulley means being in contact with said moistening liquid.

5. A device for crimping yarns and other textile materials supplied from a source, and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to the same, a central member supported by said spindle, a rotatable headpiece disposed adjacent said central member, a heater element in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said twisting member being provided with diametrically opposed bore means communicating with said longitudinal bore of said spindle to define a passageway for movement of said yarn from said source to said spindle, thereafter to said headpiece and then back into said spindle, said headpiece being provided with a guide collar, respective pin-shaped members supported by said guide collar, each of said respective pin-shaped member having a respective bore disposed at one end, said respective pin-shaped members being constructed to wind and unwind said yarn, respectively, onto and from said central member.

6. A device for crimping yarns and other textile materials supplied from a source, and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to the same, a central member supported by said spindle, a rotatable headpiece disposed adjacent said center member, a heater element in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said twisting member being provided with diametrically opposed bore means communicating with said longitudinal bore of said spindle to define a passageway for movement of said yarn from said source to said spindle, thereafter to said headpiece and then back into said spindle, magnetic means cooperating with said central member to prevent rotation of the latter.

7. A device according to claim 6, said headpiece having an axial bore defining a passageway for the movement of said yarn from said spindle into said headpiece.

8. A device according to claim 7, said headpiece being further provided with at least one radial bore communicating with said axial bore to permit movement of said yarn exteriorly of said headpiece.

9. A device according to claim 7, said headpiece being provided with a recess communicating with said axial bore, rotatable pulley means disposed in said recess and lying in the path of movement of said yarn.

10. A device for crimping yarns and other textile materials supplied from a source and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to the same, a central member supported by said spindle, a rotatable headpiece disposed adjacent said central member, a rotating heater drum in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said drum having its longitudinal axis extending normal to the axis of rotation of said spindle.

11. A device for crimping yarns and other textile materials supplied from a source and moving in a predetermined path; comprising a housing, a rotatable spindle having a longitudinal extending bore supported by said housing, a twisting member secured to said rotatable spindle for rotation with the latter, a driving whorl operatively connected to said twisting member, drive means in registry with said twisting member to impart rotational movement to said twisting member, a central member supported by said spindle, a rotatable headpiece disposed adjacent said central member, a heater drum in communication with said central member and lying contiguous said predetermined path of movement of said yarn, said drum having its longitudinal axis extending normal to the axis of rotation of said spindle, said twisting member being provided with diametrically opposed bore means communicating with said longitudinal bore of said spindle to define a passageway for movement of said yarn from said source to said spindle, thereafter to said headpiece and then back into said spindle.

12. A method of crimping yarns and the like, comprising the steps of feeding the yarn along a tortuous path, moistening the thus fed yarn with a thread moistening liquid, twisting said yarn about its axis in one direction to thereby form a crimp, subjecting the twisted yarn to heat to thereby set said crimp in the yarn, while the yarn is subjected to additional tension, and finally twisting the yarn in the opposite direction about its axis in order to remove the twist initially imparted thereto.

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