United States Patent

Gordon

[15] **3,648,484**

[45] **Mar. 14, 1972**

[54] TUBULAR KNITTING DEVICE

[72] Inventor: **Eileen Gordon,** 205 Third Avenue, New York, N.Y. 10003

[22] Filed: **July 29, 1969**

[21] Appl. No.: **845,744**

[52] **U.S. Cl.** **66/4**

[51] **Int. Cl.** **D04b 3/00**

[58] **Field of Search** 66/1.1, 4

[56] **References Cited**

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Primary Examiner—Wm. Carter Reynolds
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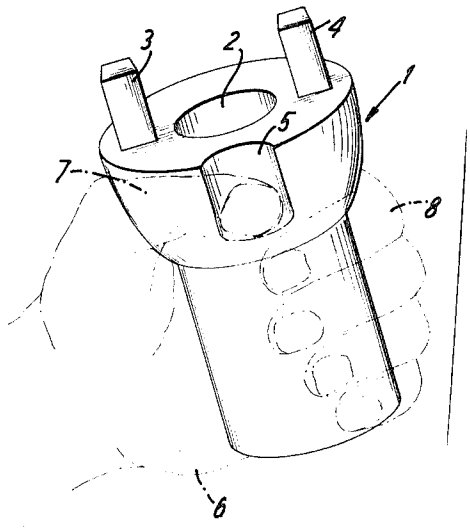
[57] **ABSTRACT**

The present invention provides a new tubular knitting device requiring only two yarn retention members. The device is further adapted to knit the yarn without constant reorientation of the device. The device preferably includes a yarn alignment depression longitudinally running along the upper portion of the outer peripheral surface of the device with the device so configured as to allow its acceptance within the palm as to make the depression accessible to the thumb of a user.

11 Claims, 17 Drawing Figures



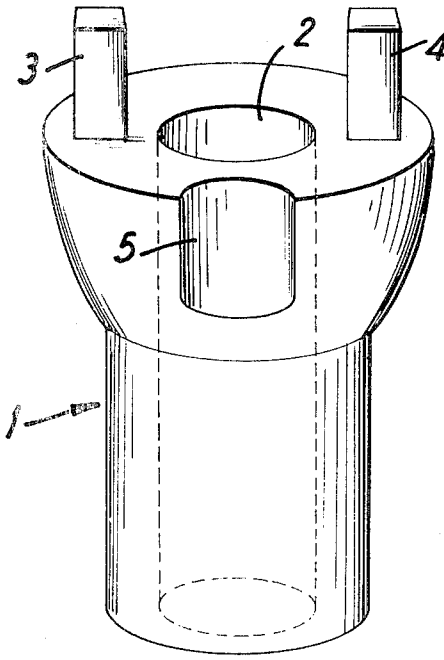


FIG. 1

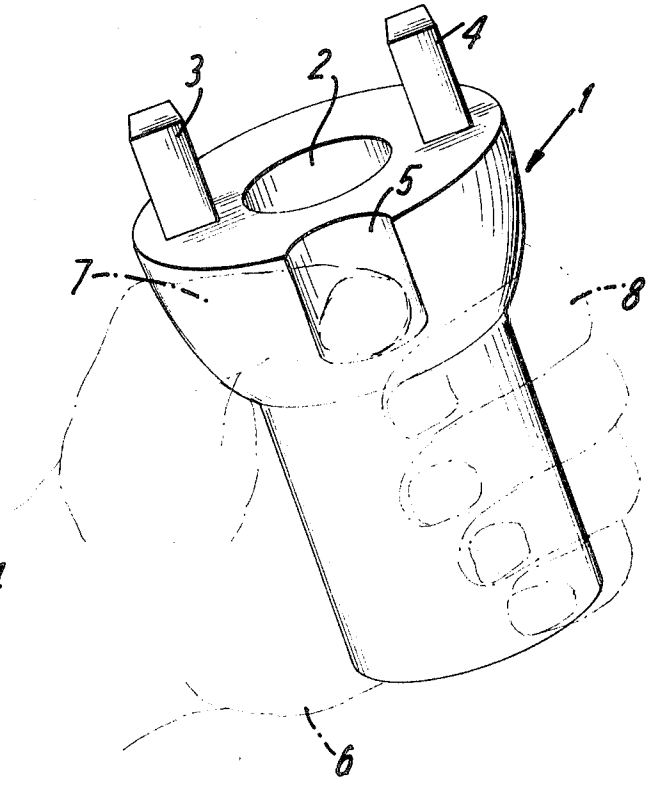


FIG. 2

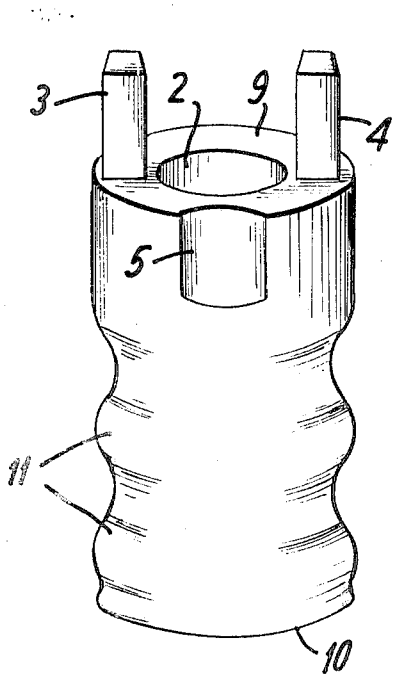


FIG. 3

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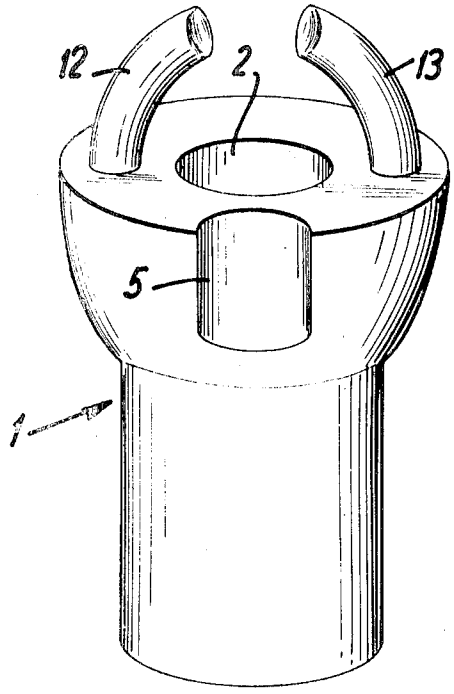

FIG. 4

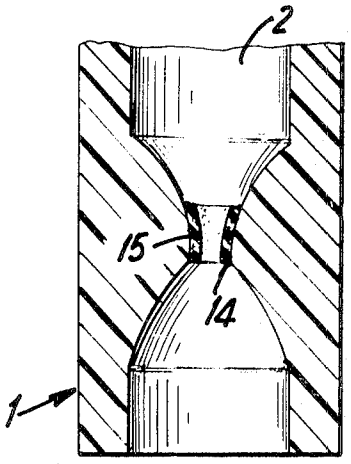

FIG. 5

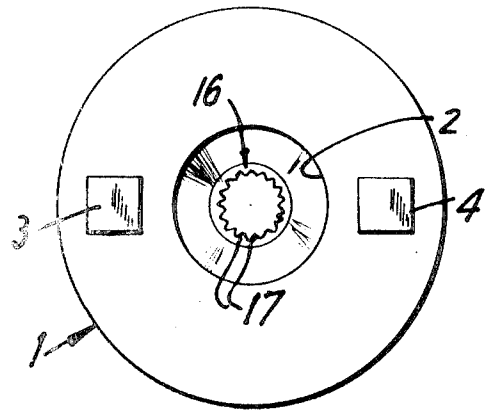

FIG. 6

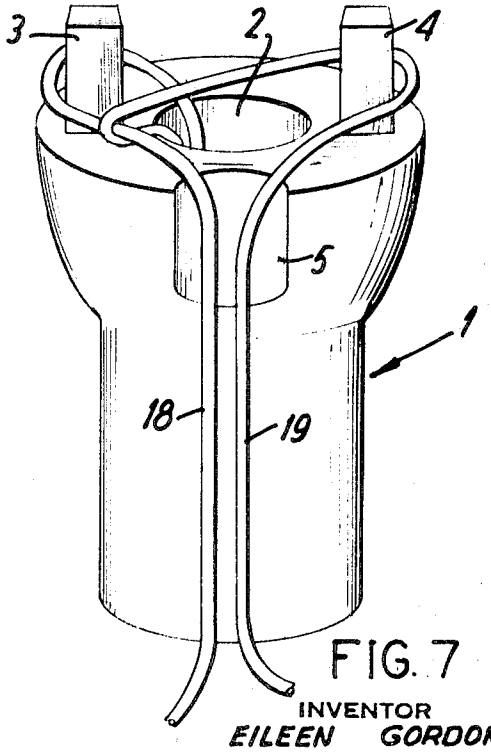

FIG. 7

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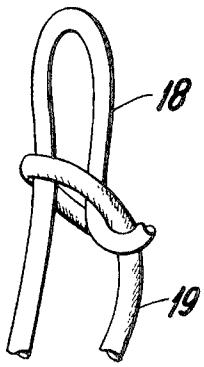

FIG. 8

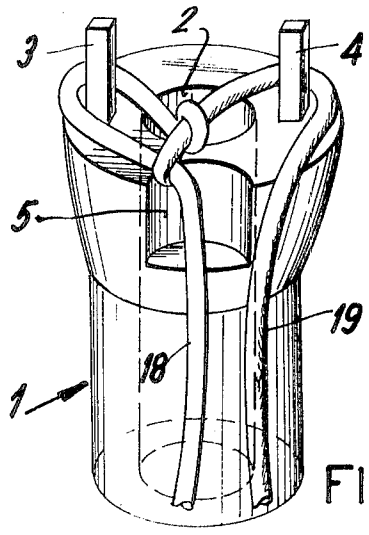

FIG. 9

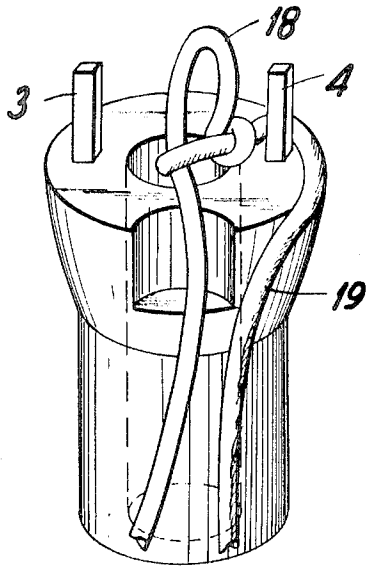

FIG. 10

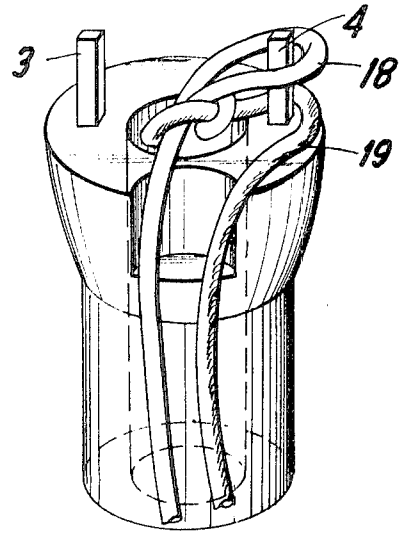

FIG. 11

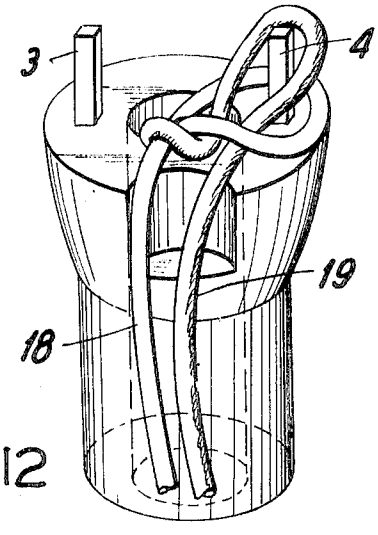

FIG. 12

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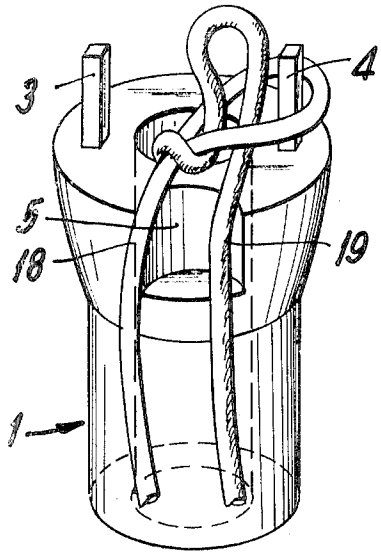


FIG. 13

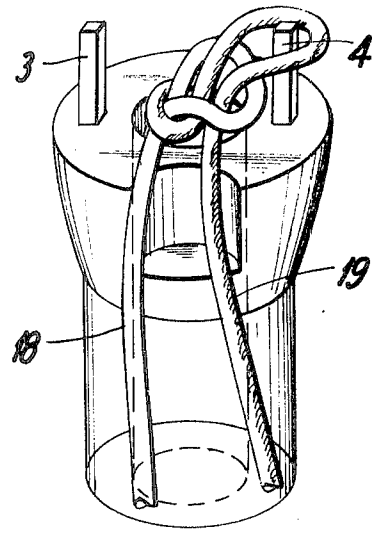


FIG. 14

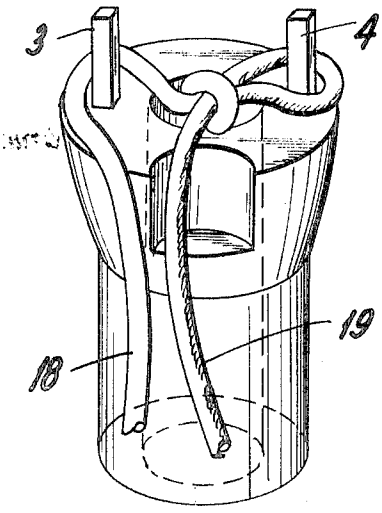


FIG. 15

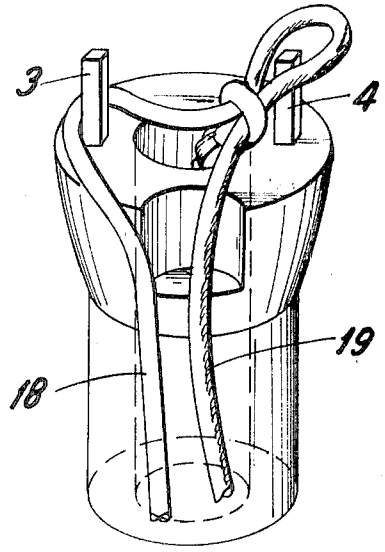
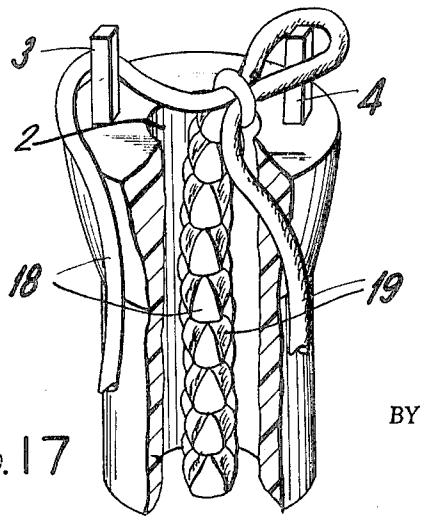


FIG. 16



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TUBULAR KNITTING DEVICE

The present invention relates to a knitting device and more particularly to a tubular knitting device.

Tubular knitting devices which generally include a tubular member having vertical posts along one end thereof have long been known. In the past such devices have employed a four post arrangement wherein a length of yarn was looped about each of the posts and through use of a chrochet needle or the like, yarn was, in turn, looped over each post to knit the yarn.

The needle or knitting pin requirement was somewhat disadvantageous in that the wool or yarn was subject to damage by the end of the needle and slippage oftentimes occurred with the yarn riding off the needle end at an undesirable time during the knitting operation.

While some improvements have been suggested in needle design such as by provision of a beak or the like on the needle end, the knitting device still required some form of needle or other supplementary tool for proper operation.

In addition, a series of at least four loop holders or vertical posts were required on such knitting devices, with the knitting device being hand reoriented for each stitch so as to present the desired post in proper orientation for the next progressive knitting step.

According to the present invention a tubular knitting device is provided requiring only two vertical posts and allows for the ready looping of yarn without the need for a supplemental needle or the like. The knitting device of the present invention further preferably includes a recess along a single vertical side of the tubular body of a width sufficient to accept two parallel aligned lengths of the yarn being knitted and a portion of the thumb or finger of a user.

As hereinafter more particularly described, the vertical posts of the knitting device may be arcuate to aid in the ready manipulation of the yarn between the two posts and the core of the tubular device may include a gripping member to aid in the maintaining of a desired alignment of the knitted yarn within the central core of the tubular member.

Although such novel feature or features believed to be characteristic of the invention are pointed out in the claims, the invention and the manner in which it may be carried out may be further understood by reference to the description following and the accompanying drawings.

FIG. 1 is a perspective view of a knitting device of the present invention.

FIG. 2 is a perspective view of the device of FIG. 1 in a hand.

FIG. 3 is a perspective view of another knitting device of the present invention.

FIG. 4 is a perspective view of an alternate embodiment of the knitting device of the present invention.

FIG. 5 is a longitudinal sectional view of the lower section of a knitting device of the present invention.

FIG. 6 is a top elevational view of an alternate embodiment of the present invention.

FIG. 7 is a perspective view of a knitting device of the present invention having two lengths of yarn positioned thereon for knitting.

FIG. 8 is a front elevation of a finger-made start stitch.

FIG. 9 is a front elevation of the loop of the start stitch of FIG. 8 engaged on a knitting device of the present invention.

FIG. 10 is a view of FIG. 9 with the loop between the posts of the knitting device of the present invention.

FIG. 11 shows a knitting device of the present invention with the loop of FIG. 10 engaged on an opposite post.

FIG. 12 is a knitting device of the present invention with the loop of FIG. 11 on the post and a new loop through said first loop, coming off said post.

FIG. 13 shows a knitting device of the present invention with the other loop of FIG. 12 being removed from the post.

FIG. 14 shows a knitting device of the present invention with the new loop of FIGS. 12 and 13 being placed on the post.

FIG. 15 shows a knitting device of the present invention with the new loop of FIGS. 12 and 13 engaged on a knitting device of the present invention.

FIG. 16 is a view of FIG. 15 with the loop coming off the posts of the present invention.

FIG. 17 shows a broken-away elevation of the knitting device of the present invention with the knitted product passing through the center of the knitting device.

Referring now to the figures in greater detail, where like reference numbers denote like parts in the various figures.

As illustrated in FIG. 1, the knitting device generally includes a tubular body portion 1 having a somewhat centralized longitudinal core 2. Two vertical posts 3, 4 extend from the upper horizontal surface with the posts 3, 4 spaced apart on either side of the core 2 opening. The posts 3, 4 are preferably aligned so that they are each an equal radial distance from the central longitudinal axis of the opening formed by the core 2 along the upper surface of the tubular body 1.

A depression 5 preferably beginning at a point along the upper surface of the body 1 extends vertically downward partway along the periphery of the body 1. The depression 5 is somewhat centrally located with respect to the posts 3, 4 so as to be substantially equidistant from each of the posts 3, 4. The depression 5 is of a sufficient width to accept therein two somewhat parallel aligned lengths of yarn and in its preferred form, the depression 5 is of a width sufficient to allow the fleshy side of a thumb of a user to be accepted therein.

As shown in FIGS. 1 and 2, the tubular body 1 is of a wider diameter along its upper section and then tapers, preferably at a point below the lowermost extension of the depression 5 to a narrow diameter. The foregoing configuration allows for greater ease in use of the knitting device of the present invention. The body 1 is thus adapted, as shown in FIG. 2, to rest in the palm of the hand 6 of a user, disposed so that the lesser diameter section of the body is disposed across the palm with the juncture of the lesser and wider diameter portion located somewhat along the juncture between the thumb 7 and first finger 8 of the user. The thumb 7 is then aligned so as to be readily adapted to be positioned over the depression 5 and control the tension on the yarn being knitted. The wider diameter portion of the body and the posts 3, 4 are disposed above the hand and are readily accessible for yarn manipulation by the other free hand of the user.

As shown in FIG. 3, a similar result may be obtained in a configuration where the upper and lower surfaces 9, 10 of the tubular body are of somewhat equal diameter by provision of a series of undulations 11 along the two surfaces of the tubular body adjacent the surface having the depression 5 therein. The tubular body of FIG. 3 is thus similarly adapted to rest with the palm and be positioned so the thumb is adapted to cover the depression 5.

In FIG. 4, the body 1 includes arcuate posts 12, 13 with the posts 12, 13 aligned along a common horizontal plane. In such manner, the transferance of the looped yarn between the posts, as hereinafter more particularly described is facilitated.

As illustrated in FIGS. 5 and 6, the core 2 may include means therein to yieldably retain the knitted yarn. As with prior devices in the field the knitted yarn feeds outward from the core opening at the base of the tubular body.

So that a desirable tension may be maintained on the yarn, especially where the loops of yarn are to be transferred between the posts, the core 2 may be constructed, such as illustrated in FIG. 5 so as to be constricted at a point 14 along its lower portion. If desired, flexible pads 15 may be provided along the constricted area to yieldably engage the yarn. The constricting is preferably in the shape of a truncated cone with the narrower diameter opening of the cone pointing in the direction of the base of the tubular body. In such manner, the yarn is more readily able to be drawn outward of the base of the tubular body, yet somewhat inhibited from movement upward towards the upper portion of the tubular body.

In FIG. 6, the core 2 includes a fairlead 16 securely emplaced therein with the fairlead 16 including flexible fingers 17 about its central opening adapted to yieldably grip the yarn.

In operation, as illustrated in FIG. 7, two lengths of yarn 18, 19 are employed. Initially, the two lengths of yarn 18, 19 are

knotted together so that a loop is formed from one of the lengths **18**. The first length of yarn **18** having such loop is positioned about one of the posts **3**. The second length of yarn **19** is looped about the other post **4**. The knotted ends of both of the yarns **18, 19** are positioned inward of the core **2**.

In knitting, the first length of yarn **18** is then lifted over its post **3** and positioned over the other post **4**. The second length of yarn **19** is then slipped over the first length of yarn **18**. By pulling on the ends of both yarns **18, 19** extending outward of the core **2** at the base of the tubular body, a knotted stitch results. By simply looping a length of yarn about the vacant post, the operation can be continuously repeated.

Proper orientation and tension on the yarn is readily maintained by the thumb which retains the feeding portions of the yarns within the depression **5**.

It should be noted that the orientation of the tubular body **1** is the same throughout the entire operation of successive stitches and the constant revolution of the tubular body requisite in prior devices is not incurred.

While the depression **5** has been illustrated so as to terminate at a given point along the periphery of the tubular body **1**, it is readily understood that the depression **5** may be extended vertically downward along substantially the full length of the tubular body **1**, if desired.

Although a needle is unnecessary for the repositioning of the loops from one post to another, it can be employed if desired.

The terms and expressions which are employed are used as terms of description, it is recognized though, that various modifications are possible.

Having thus described certain forms of the invention in some detail, what is claimed is:

1. A tubular knitting device for knitting two separate threads, comprising a tubular body portion having a longitudinal core therethrough, two fixed yarn retention members extending substantially upward from the upper surface of said tubular body, said tubular body adapted to be grasped in the full palm of a hand, said yarn retention members spaced on opposite sides of said core, said retention members aligned so as to be substantially an equal radial distance from the central longitudinal axis of the opening formed by the core along said upper surface of said tubular body said tubular body including a depression on one side, said depression beginning at a point along the upper portion of the periphery of said tubular body and extending longitudinally part way along the periphery of said tubular body, said depression being of sufficient width to accept therein two somewhat parallel aligned lengths of yarn and the fleshy side of a thumb.

2. The device as claimed in claim **1** wherein said depression is substantially equidistant from each of said yarn retention members.

3. The device as claimed in claim **1** wherein said tubular body includes an upper peripheral section and a lower peripheral section, said upper peripheral section of a wider diameter than said lower peripheral section, and said depression is on said upper peripheral section.

4. The device as claimed in claim **1** wherein said tubular body includes a series of longitudinal undulations on two surface areas thereof adjacent the surface area of said tubular body having said depression therein.

5. The device as claimed in claim **1** wherein each of said yarn retention members is an arcuate post.

6. The device as claimed in claim **5** wherein the upper ends of said arcuate posts are along a common horizontal plane.

7. The device as claimed in claim **1** wherein said longitudinal core includes means to yieldably retain yarn.

8. The device as claimed in claim **7** wherein said retention means includes a fair-lead extending transversely across said core, said fair-lead including flexible fingers.

9. The device as claimed in claim **7** wherein said retention means includes a constricted portion along said core.

10. The device as claimed in claim **9** wherein said constricted portion is in the shape of an inverted truncated cone.

11. The device as claimed in claim **9** wherein said constricted portion includes flexible pads.

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