

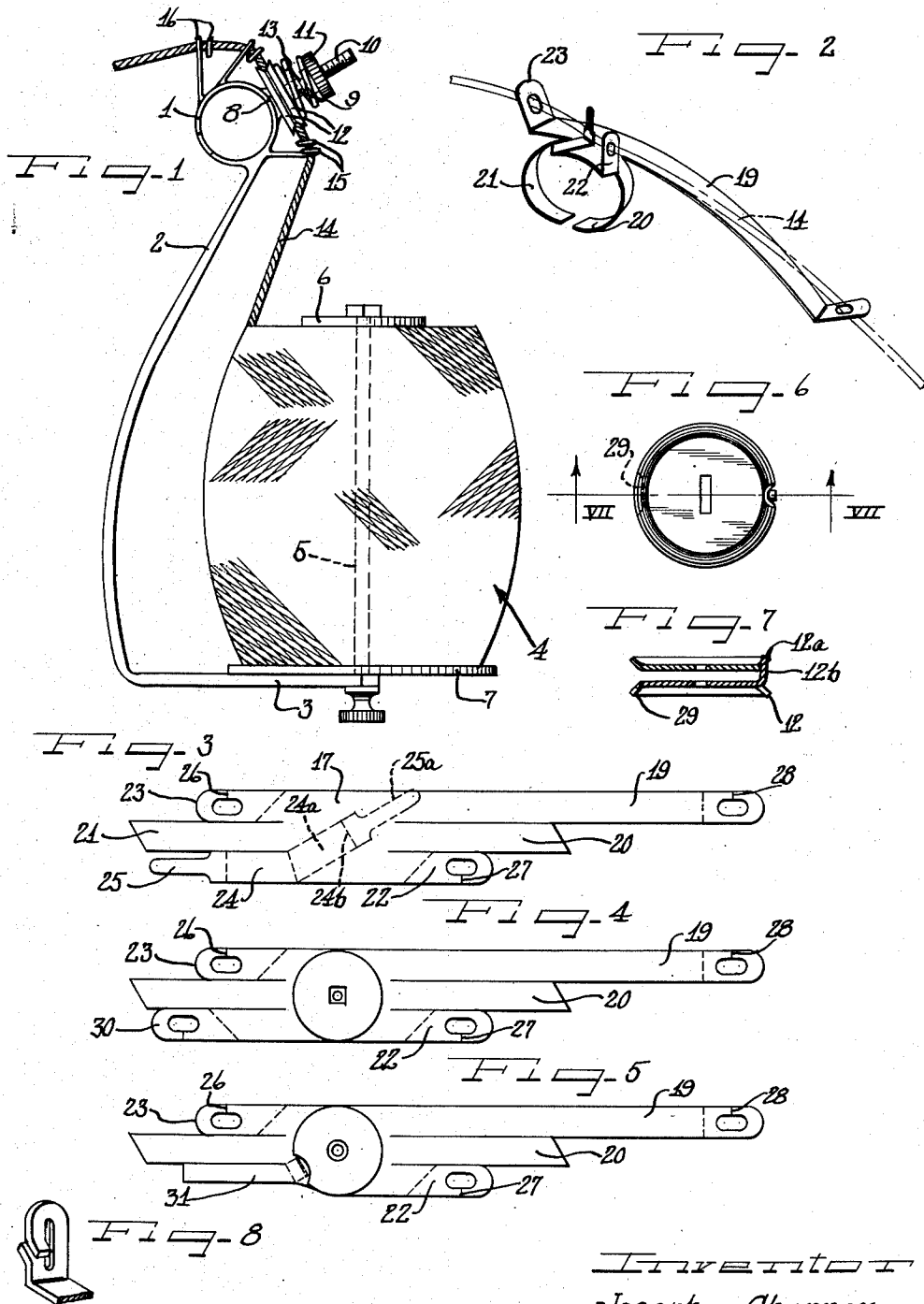
June 22, 1954

J. CHARNEY

2,681,772

TENSION MECHANISM AND YARN SUPPORT FOR KNITTING

Filed Aug. 4, 1952



Inventor
Joseph Charney

Attorney
M. Sherman, McLean, Chas. & Smith

Patented June 22, 1954

2,681,772

UNITED STATES PATENT OFFICE

2,681,772

TENSION MECHANISM AND YARN SUPPORT FOR KNITTING

Joseph Charney, Chicago, Ill.

Application August 4, 1952, Serial No. 302,575

5 Claims. (Cl. 242-134)

1

This invention relates to apparatus for use in the preparation of hand knitted articles. More particularly the invention relates to a tensioning mechanism which will eliminate the major cause of difficulty encountered by novices in the art of knitting, and which will greatly increase the speed with which even the most experienced knitter is enabled to work.

The art of knitting is, of course, a very ancient one and has been practiced by persons of varying skill for centuries. One of the major problems in becoming a skilled knitter has been found to be that of keeping proper tension on the yarn as it is put on the knitting needles from the ball or skein which is the source of supply. The usual technique applied by knitters is that of wrapping several turns of the incoming yarn about the forefinger of the left hand. The skilled knitter may then during the knitting process maintain a tension upon the yarn through his or her sense of feel as reflected in the tightness of the yarn about the forefinger.

It, of course, becomes immediately apparent to those familiar with the differences in human beings that the tension applied by different individuals will be entirely different and the ability of different individuals to maintain a constant tension is likewise a definite variable. This is, of course, particularly true in the case of beginners in the art and a beginner's work is generally very easily recognizable by the unevenness of the tightness of the stitches in the finished article, a feature which appears in an unsightly series of loops and bunches in the material.

The present invention, therefore, contemplates the provision of a very simple, inexpensively manufactured apparatus which will provide a constant tension on the yarn as it is placed upon needles. According to the present invention the sense of feel of the knitter is of no importance and the human factor of error in the knitting operation is therefore at a minimum.

In fulfilling the above requirements, I have constructed a tensioning device which may be worn by the knitter in a comfortable and convenient and non-interfering position on the forefinger of the knitter. The wool yarn may thus be passed through the tension device on the way to the needles and may also, according to one species herein disclosed, be carried by the tensioning mechanism itself in a convenient position in back of the knitter's hand.

It is, therefore, an object of the present invention to provide a tensioning mechanism which may be used in the art of knitting for maintaining the tension on the knitting yarn constant at all times.

A further object of the present invention is the provision of a tensioning device which may be made from a very simple stamping with a minimum of manufacturing operations.

Still another object of the present invention is the provision of tensioning means which may readily be worn by the knitter in a convenient po-

2

sition which will not interfere with the usual knitting motions.

Yet another feature of the present invention is the provision of a novel tensioning mechanism having a very simple adjustment whereby the tension may be varied for various sizes and types of yarn materials.

Another object of the present invention is to provide a tensioning device for knitters of the novice class whereby no skill whatever is needed in maintaining the proper tension on the yarn at all times.

A still further object of the present invention is the provision of a combined tensioning device, for maintaining the tension constant, and yarn holding spool whereby the knitter is freed from the worry of proper tension and loose yarn.

Other and further objects will readily appear to those skilled in the art from the attached drawing and description thereof which disclose a preferred embodiment of my invention.

On the drawings:

Figure 1 is a side elevation of a tension apparatus for use in knitting showing a yarn holder combined therewith;

Figure 2 is an isometric view of the finished stamping forming the tensioning device without the integral yarn holder and showing the basic stamping alone with the yarn passing through the guide apertures;

Figure 3 is a plan view of the blank which is formed into the construction shown in Figure 2;

Figure 4 is a modified version utilizing an extra yarn guide and a somewhat modified tension-plate locking arrangement;

Figure 5 is a further modification of the stamping utilized in manufacturing my novel tensioning mechanism;

Figure 6 is a plan view of the tension plates utilized with the construction shown in Figures 2 and 3;

Figure 7 is a cross-sectional view taken along the lines VII-VII of Figure 6; and

Figure 8 is an isometric view of the preferred guide apertures used with my invention.

As shown on the drawings:

As shown in Figure 1, I have provided a ring portion 1 with an extended tail-like extension 2. In the modification shown in Figure 1 this extension 2 extends into a looped end 3 which is then passed vertically upward or at any other suitable angle through a yarn holder generally indicated at 4 and which comprises a central spindle 5 attached to the tail 3 and the loosely mounted end plates 6 and 7.

Soldered or otherwise permanently affixed to the ring 1 is a generally vertical stud 8 which has a non-threaded portion 9 and a threaded portion 10 which cooperates with an adjusting nut member 11. A pair of clamping tension plates 12 are provided about the non-threaded portion 9 and are maintained in compression against one another by means of a spring 13 which reacts against the adjusting nut 11.

Provision is made for preventing the rotation of the members 12 about the portion 9 in order that the action of the yarn upon these members will not cause rotation of them thereby tending to loosen the adjusting nut 11 and changing the tension. In Figure 1 it is contemplated that the portion 9 be of polygonal configuration with polygonal openings being formed in the members 12 for cooperation therewith. However, I also contemplate the use of alternative methods such as aligned notches in the rims of the clamping plates 12 with a vertical post attached to the ring 11 and placed within the notches above mentioned. This latter technique has an advantage in that it provides yarn guides, a feature which will be more fully developed with respect to the modification shown in Figure 5, to be discussed later.

As shown in Figure 1, the yarn 14 is drawn from the yarn holder 4 through guide members 15 and 16. As shown in Figure 1 these guides are attached securely to the ring member 1 and are of the curled wire type wherein the yarn may be placed through them by either passing it through the opening formed by the wire or by winding it through the side opening of the loops in the well known manner.

As shown in Figure 2, I have provided a modification of the apparatus shown in Figure 1 which is commercially extremely readily manufactured. As will further be noted the construction shown in Figure 2 has eliminated the yarn holding mechanism 4. While certain advantages are to be gained by combining the yarn holder with the tensioning mechanism there are many persons who would prefer to eliminate all possible excess weight from the device thereby making the independent tensioning mechanism a more desirable apparatus to such persons.

The apparatus as shown in Figure 2 is originally developed from the stamping shown in Figure 3. This stamping which is a very simple one and which lends itself admirably to being stamped from a continuous strip of sheet metal, comprises a central body portion 17 with an extending tail portion 19. Adjustable finger ring members 20 and 21 also extend from the body 17 at approximately the middle portion thereof. The yarn guide members 22 and 23 extend from the body portion 17 at diagonally opposite corners thereof. At the lower left hand corner of the blank as viewed in Figure 3 I have provided a center post member 24 which has a reduced area section 25 at its outer end.

This blank is bent into the form shown in the isometric drawing of Figure 2 by bending the various extensions 19, 22, 23, 24, along the indicated dotted lines. As shown in the dotted lines of Figure 3, after the member 24 has been folded back diagonally across the body 17, it is again folded vertically upwardly at the dotted portion 24b. The portion 25 is then threaded by means of conventional dies to accept a nut 11 identical to that shown in Figure 1. The general contour formed from smooth bends is shown in Figure 2 and may be modified somewhat to fit individual finger dimensions or the angle of the extension tail 19 may be changed to the position most comfortable for the knitter.

As shown at 26, 27 and 28, the yarn guides are notched and perforated so that the yarn may be inserted into the perforations from a lateral direction thus eliminating the requirement for threading the yarn through the system. While the notches 26, 27 and 28 may be a direct or

slanted notch, it is contemplated that a baffle notch such as that shown in Figure 8 be utilized if desired.

While the materials utilized in the instant invention may, of course, be of any type, it is preferred that the lightest possible metals having a substantial strength be utilized. One of the great advantages of the construction shown in Figures 2 and 3 is that this stamping requires absolutely no additional parts to be soldered to it. This renders it easy to manufacture the device from aluminum or alloys thereof without the expensive preparation required for soldering aluminum. It is contemplated, therefore, that the construction shown in Figures 2 and 3 utilize aluminum as the material, thus rendering an extremely light unit.

Since the member 24 is of sheet stock, it will have a generally rectangular cross-sectional area. By manufacturing the plate 12 in the manner shown in Figures 6 and 7, this may be taken advantage of for preventing rotation of the plates 12. As is shown in Figure 6, the aperture through the center of plates 12 is formed in a rectangular cross-section so as to conform with the cross-sectional area of the member 24. A further slot 29 is formed in the peripheral edge of the lower member 12. This slot clears the flat portion 24a shown in Figure 3 and enables the lower plate 12 to sit flat upon the central portion 17.

In the modification shown in Figure 4 an extra guide member 30 is provided. This guide member has been found to aid in placing the yarn in a final position for somewhat easier use. By extending the guide 30 somewhat down from and beyond the guide 23 the yarn by being drawn through the guide 30 will tend to position the tension mechanism backwardly upon the fingers so that the arm 19 will position itself rather closely along the back of the remaining fingers of the hand. This is a desirable feature, but in the interest of simplicity it may be dispensed with if desired.

In the embodiment shown in Figure 5, I have provided a somewhat different type of locking means for the plates 12. A projection 31 is formed at the lower left hand corner of the blank as shown in Figure 5. This projection is subsequently bent into a vertical direction and folded backwardly upon itself to form the locking post as shown in the dotted lines in Figure 5. Besides performing the function of a locking post, this member also serves as a safety feature which prevents yarn from being pressed out from between the plates 12. Some yarns are of such a coarse and uneven nature that they will cause the upper plate 12 to tilt somewhat as the yarn passes between the plates. This tilting action will tend to force the yarn radially outwardly so that it will become disassociated with the disks unless a member such as 31 is placed at the periphery thereof. While such a safety post is a necessity when working with heavy yarns, it has been found to be unnecessary when working with finer threads and yarns of the usual smooth texture.

It is, of course, contemplated that such safety post be utilized with any of the constructions of Figures 1 through 4. A further method of arriving at this result is shown in Figures 6 and 7 wherein the upper member 12 has a slot 12a which cooperates with the finger 12b formed on the lower plate 12. Since the plates 12 are held against rotation by the elongated aperture there-through which cooperates with the member 24,

the member 12b will retain its angular position and operate as a safety post in the same manner as the member 31. The advantage that is obtained through the arrangement shown in Figure 7 is that the safety post need not form a part of the basic stamping, thereby allowing the production of the basic stamping from the narrowest possible strip of sheet metal. While only one such safety post has been shown it is, of course, apparent that they may be placed at opposite sides of the plates 12 as well as at only one side.

In operation the finger, preferably the forefinger of the knitter, is placed through the ring portion 1 with the tail portion 2 or 19 lying against the back of the remaining three fingers serving as a guide. The yarn is placed through the guide members 19, 22 and 23 by means of the slots in the sides thereof. In the case in which no safety posts are used, the yarn may readily be inserted laterally between the plate members 12. However, if the mechanism is to be utilized with heavy yarn, the safety posts are required and threading of the yarn between the plates 12 requires that the upper plate be lifted above the top of the safety posts so that the yarn may be inserted laterally between the members 12. With the yarn in the threaded position, the knitter merely draws the yarn as required through the mechanism to the needle, thus placing a constant tension on the yarn as it is placed upon the needles.

It is apparent from the disclosure recited above, that I have provided a novel and extremely useful apparatus for use in the process of hand knitting. The construction has proved in practice to be an extremely desirable and beneficial unit which eliminates, for all practical purposes, the human factor from knitting, thereby giving an even, professional look to the finished product even though the maker is an amateur and allowing the professional to greatly increase his speed.

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

I claim as my invention:

1. A tension device for use in knitting operations comprising, a central ring portion adapted to surround a finger of a person, first, second and third guide means integral with said ring portion and extending outwardly therefrom, a tension plate between first and second of said guides, spring means associated with said tension plate for applying the tension thereto and adjustment means for said spring whereby the tension may be varied, and an extension integral with said ring portion and extending laterally therefrom, said extension supporting a ball of yarn, whereby the yarn may be carried by said extension and passed through said third, second and first guides and between said tension plates to provide the knitter with a supply of yarn at the knitting needles, said supply being under constant adjusted tension.

2. A tensioning mechanism for use in hand knitting which comprises, a sheet metal body member, said member comprising a pair of integral legs arcuately formed into finger-engaging portions, a first guide member integral with and extending laterally from said body member, a second guide member extending laterally from and integral with said body member, a projection extending vertically from said body member for carrying a pair of tension plates, spring means for biasing said plates together, adjust-

ing means carried by said post for increasing the tension applied by said spring, and third guide means extending a substantial distance from and integral with said body member whereby yarn may be guided from a source of supply through said third guide member to said second guide member and from there through said tensioning means and said first guide member to a position of use.

3. A sheet metal blank for use in forming a tensioning apparatus comprising, a central flat body portion, a first guide member extending a substantial distance from a corner of said central portion, a first finger engaging portion extending from the side of said body portion parallel to said first guide portion, a second guide portion extending parallel to said first guide portion and at the other corner of said body portion, third guide means extending opposite to and in axial alignment with said first guide means, second finger-engaging portion means extending from the opposite side of said body member from said first finger-engaging portion and in axial alignment therewith, and a third laterally extending portion adapted to be deformed for cooperation with tensioning apparatus.

4. A sheet metal blank for use in forming a tensioning device comprising, a central flat body portion, a first integral sheet metal guide arm extending from a corner of said central portion and having a deformable guide portion at its outer extremity, a first integral finger engaging arm extending from the side of said body adjacent said first guide arm, a second integral finger engaging arm extending from said body on the opposite side thereof from said first finger engaging arm and a second guide arm integral with and extending from said body portion adjacent said second finger engaging arm and having a deformable guide portion at its outer extremity.

5. A sheet metal blank for use in forming a tensioning device comprising, a central flat sheet metal body portion, a first guide arm integral with and extending from a corner of said central portion and having a deformable guide portion at its extremity, a first integral finger engaging arm extending from said body adjacent said first guide arm, a second integral finger engaging arm extending from said body on the opposite side thereof from said first finger engaging arm, a second guide arm extending from said body portion adjacent said second finger engaging arm and having a deformable guide portion at its outer extremity, and a third guide arm extending from said body portion at a point adjacent one of said finger engaging arms.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
27,594	Landon	Mar. 20, 1860
491,265	Ruby	Feb. 7, 1893
602,522	Richards	Apr. 19, 1898
756,314	Ammerman	Apr. 5, 1904
945,880	Wardwell	Jan. 11, 1910
1,386,515	Larson	Aug. 2, 1921
1,534,264	Hanson	Apr. 21, 1925
2,021,946	Riely	Nov. 26, 1935
2,313,684	Thulin	Mar. 9, 1943

FOREIGN PATENTS

Number	Country	Date
7,129	Great Britain	Mar. 29, 1912