

**Oct. 25, 1966**

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**3,280,595**

# HAND KNITTING APPARATUS

Filed May 25, 1965

3 Sheets-Sheet 1

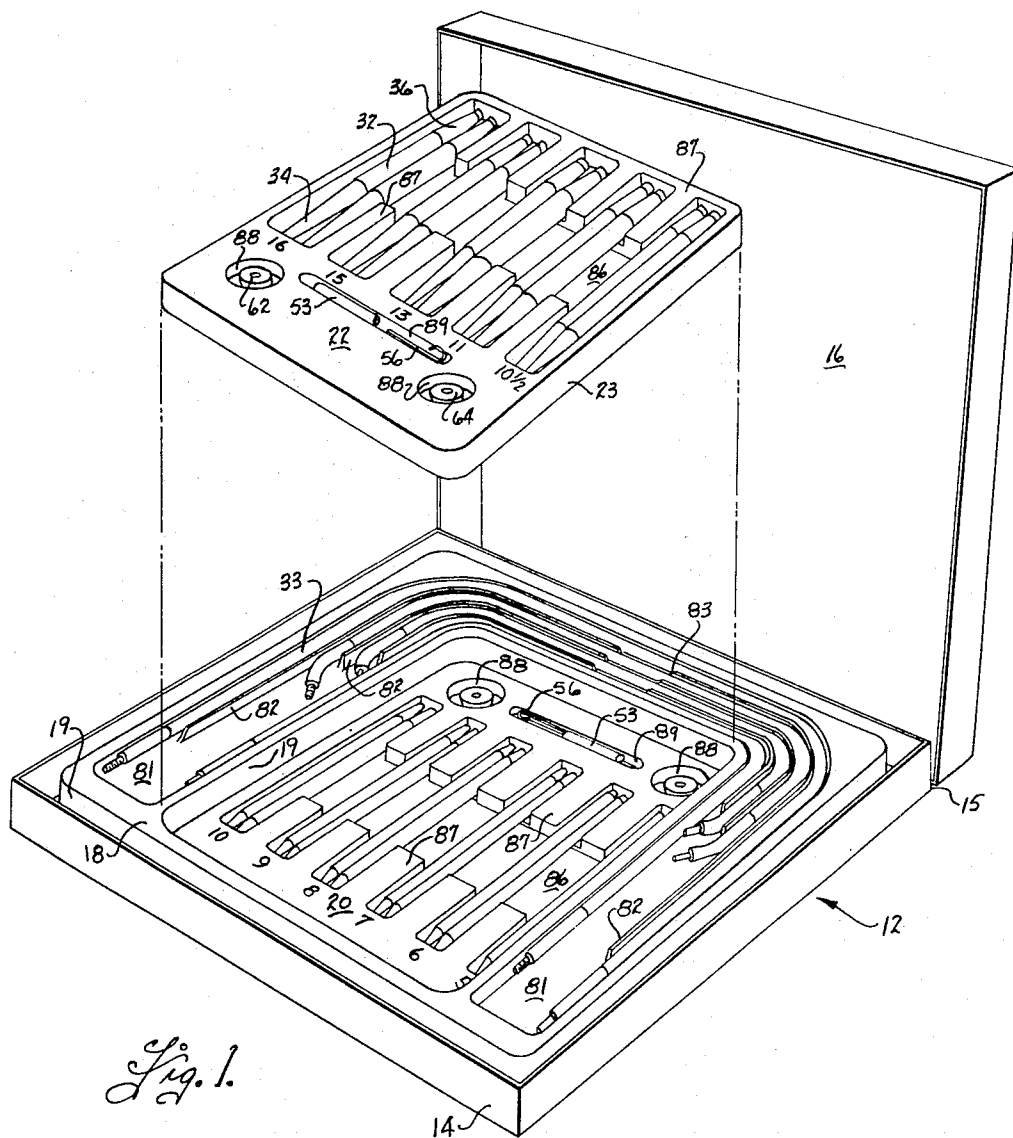


Fig. 1.

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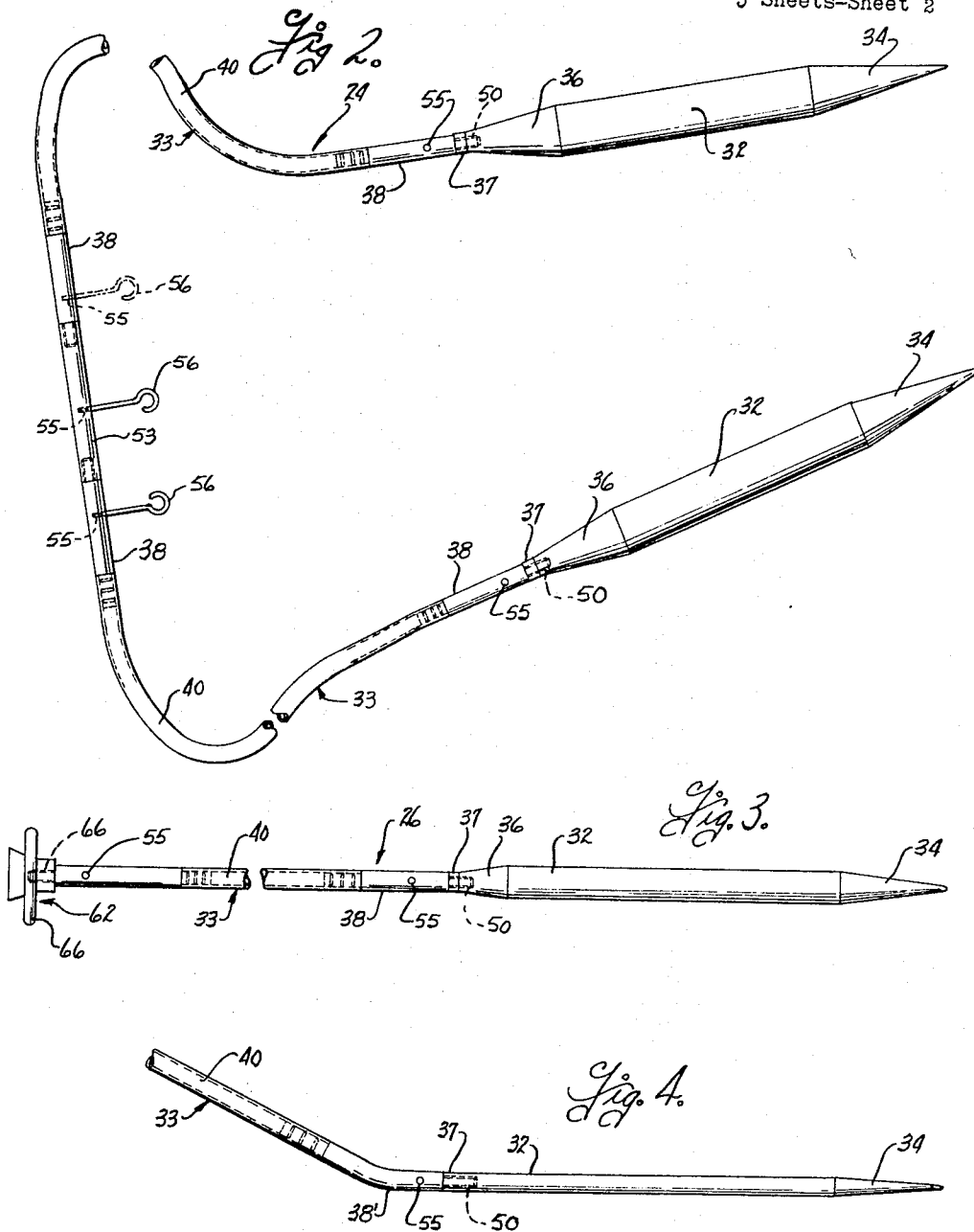
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Fig. 5.

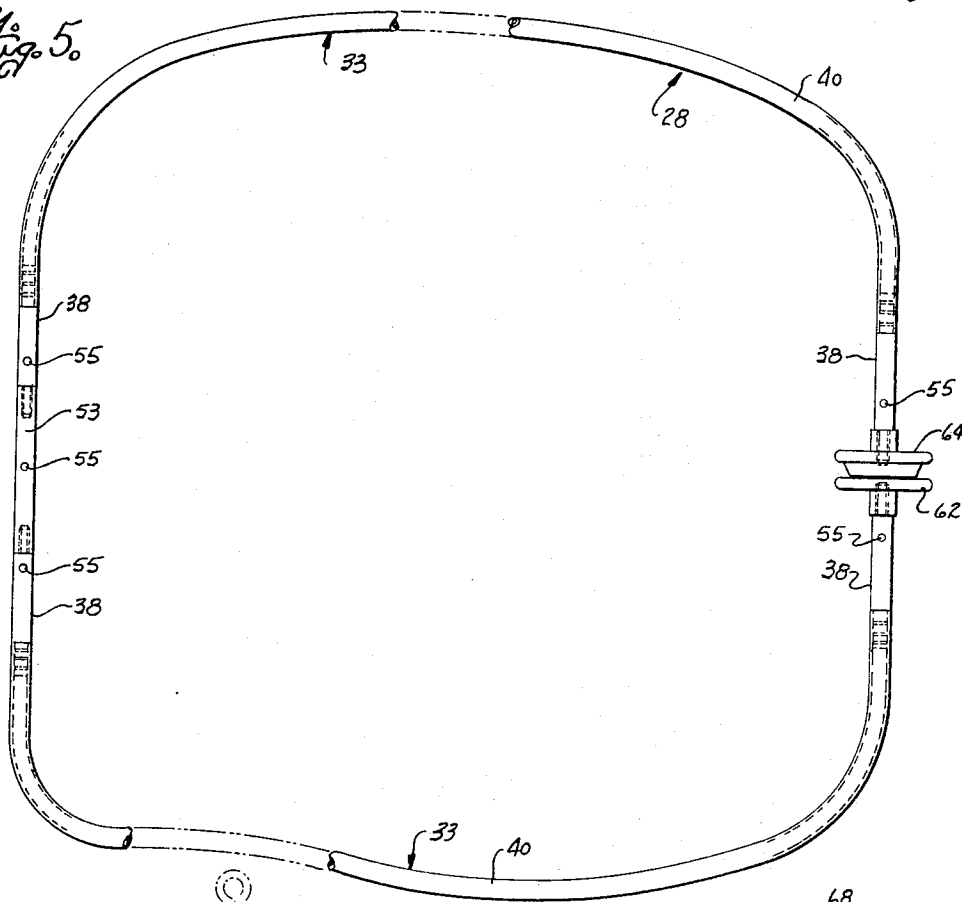


Fig. 6.

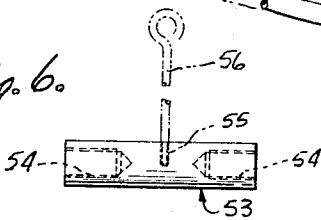


Fig. 9.

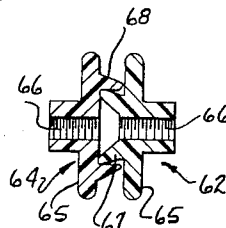


Fig. 7.

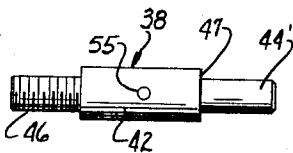


Fig. 10.

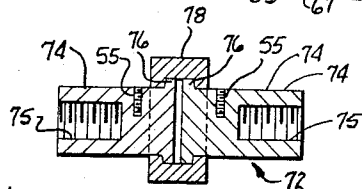
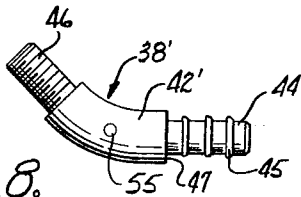


Fig. 8.



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## HAND KNITTING APPARATUS

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13 Claims. (Cl. 66-117)

This is a continuation-in-part of application Serial No. 338,669, filed January 20, 1964.

This invention relates to knitting and more particularly to a hand knitting apparatus.

In hand knitting carried on in the home, efficient work requires that the knitter use a large number of different knitting needles and related apparatus. This is due to the variations in the characteristics of articles she may knit. For example, the article can range from small and tubular, as a baby bootie, to large and flat, as a blanket. Thus, the shape of the article and the number of stitches may vary in any particular article being knitted and, obviously, different types and lengths of needles are required. Likewise, the size of the yarn selected or the particular design of the article may require any one of various needle sizes. For example, in decorative knitting, various sizes of needles may be required in the same row of stitches. This is true with respect to both straight and circular needles.

When the article being knitted is to be set aside temporarily, as frequently occurs with the hobbyist, or fitted on a person for size, or the like, it is desirable that a stitch holder or work holder be provided so that stitches are not dropped and the knitting ruined. Numerous stitch holders may be required for various size articles as described above. Thus, the knitter may find herself faced with the purchase of a number of stitch holders, as well as different knitting needles, if she does a variety of knitting.

It is an object, therefore, of the present invention to provide a hand knitting apparatus, in new and useful kit form, and which includes a variety of carefully chosen related parts which are readily selectable and easily assembled into various knitting needle assemblies on stitch holders.

An object, related to the foregoing, is to provide a new and useful container for a collection of integrated parts, adapted to be connected or disconnected at the instance of the knitter, and for holding the parts in a predetermined, orderly manner which enables simplified visual selection of the parts and simplified storage thereof.

An important object is to provide a hand knitting apparatus that is adaptable to practically all of the situations that may be presented to the hand knitter, and particularly that she may provide either stitch holders, or circular or straight needle assemblies through the use of common elements and that she may provide such needle arrangements in different sizes, tips, and lengths.

It is another object to provide a hand knitting apparatus wherein a more or less standard type and size flexible unit is provided which includes a flexible vinyl tubular element having couplings attached at either end and which may be associated with similar flexible units to provide different lengths for stitch holders or straight or circular knitting needle assemblies and in which the vinyl tubular element may be easily cut and the coupling in-

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serted into the cut end by the knitter to provide a flexible member of selected length.

Still another object is to provide a hand knitting apparatus wherein the flexible member or unit of either a circular or straight knitting needle may, without transfer of the stitches thereon, be utilized as a stitch holder by replacement of each needle by a flanged stitch stop.

Yet another object, related to the foregoing, is to provide an attachment for joining both ends of the flexible unit to form a circular stitch holder.

A further object of this invention is to provide flanged stitch stops at either end of a flexible unit and which have interconnecting parts to form a circular stitch holder.

These, and other objects and advantages of the invention will be more readily understood by reference to the following description when taken in conjunction with the accompanying drawings wherein:

FIGURE 1 is an exploded perspective view of a novel kit arrangement constructed in accordance with the present invention;

FIG. 2 is a perspective view showing a circular knitting needle assembly wherein separable components are associated in accordance with the present invention;

FIG. 3 is an elevational view of a straight knitting needle assembly wherein the separable components are associated in accordance with the present invention;

FIG. 4 is a view similar to FIG. 3 and showing a different form end coupling member to be interposed between the flexible element and the knitting needle to form an angular connection therebetween;

FIG. 5 is a fragmentary plan view of a plurality of flexible members made under the present invention and associated with other components to form a circular stitch holder;

FIG. 6 is an elevational view of a female coupling member adapted to be interposed between a pair of adjacent flexible members;

FIG. 7 is an elevational view of one of the end coupling elements that are associated with each end of the flexible tubular element;

FIG. 8 is a view similar to FIG. 7 and showing an end coupling element wherein the opposite ends are arranged at an angle to each other;

FIG. 9 is a sectional view of a pair of flanged stitch stops having means for interconnecting to form a circular stitch holder as shown in FIG. 5; and

FIG. 10 is a sectional view of a connector element adapted to be used as shown in FIG. 5 for connecting the opposite ends of a flexible assembly for stitch holding as described.

Referring now more particularly to the drawings, a hand knitting kit is generally designated by the numeral 12. The particular kit, shown for purposes of illustrating the invention, comprises a container, a plurality of related members that may be assembled in different combinations and relationships, and means in the container for receiving and storing the individual members. In this instance, the container includes a generally rectangular box structure 14 having a base and sides and open at the top. A closure in the form of a lid 16 is preferably hinged to the box, as at 15, in order that the lid is always present for closing after the necessary parts required by the knitter are removed by her. In this manner, the parts

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are protected from loss or misplacement when the lid is closed. In accordance with the invention, the individual components which go together to make up the kit arrangement, are assembled and positioned for easy access and storage. Accordingly, the invention provides an attractive sectional holder member or shelf 18, suitably formed of plastic material and fitted within the box portion 14 as shown in FIG. 1. As illustrated, the shelf 18 has downturned marginal flanges 19 for supporting the same on the bottom of the box 14. In order to permit the expansion of a number of available parts in the kit, the shelf 18 has a centrally disposed depression 20 recessed from the upper surface as by wall 19. A second shelf or tray 22, is adapted to reside in the depression and is supported by downturned marginal flanges 23. The second shelf 22 is suitably formed of plastic material and is preferably substantially translucent for a purpose which will hereinafter become apparent.

As indicated, the kit 12 comprising the present invention includes a variety of related parts which may be assembled in different combinations and relationships at the will of the user to provide a circular knitting needle assembly 24, as shown in FIG. 2; a straight knitting needle assembly 26, as shown in FIG. 3; or a stitch holder such as the circular stitch holder 28 illustrated in FIG. 5. Each needle assembly 24 or 26 may be made up of needles 32 of any selected size and may embody one or more flexible members 33 so that the assemblies will have the length that is required for the number of stitches involved in the particular knitting project at hand.

As best indicated in FIG. 1, an exemplary kit 12 may conveniently contain needles 32 from size 5 through size 16. The needles 32 are preferably about 5½ inches long with a tapered tip 34 at the forward end thereof. The tips 34 may be of the usual or standard configuration illustrated, or may take specialized forms (not shown) as known to those skilled in the art. At their left or rear ends, as shown in FIGS. 2-4, the needles 32 are provided with an inwardly sloping or tapered portion 36 which provide a smooth transition to associated parts of smaller diameter to be hereinafter described. It is contemplated that this tapered or sloping portion 36 may terminate in a shoulder 37 having a diameter that corresponds substantially equal with the diameter of end couplings 38 of flexible units 33. Preferably no needle will have a diameter smaller than the diameter of the end coupling; however, the smallest needle may be of substantially the same diameter and have a generally smooth body portion with no end taper 36, as illustrated in FIG. 4.

The flexible units 33 comprise a flexible tubular member or element 40 having end couplings 38 associated with opposite ends. Each end coupling 38 includes an intermediate body portion 42 that has a diameter substantially equal to the outer diameter of the flexible tube 40, a projecting stem 44 of smaller diameter than the body 42 but not less than the inside diameter of the flexible element 40, and a reduced threaded stud 46 at its other end. In its preferred form, projecting stem 44 has a plurality of relatively sharp, annular retaining rings 45 thereon. In this manner, the tubular element 40 may be forced onto the stem 44 with the end of the tubular element abutting a shoulder 47 at the adjacent end of the body 42, and the tubular element 40 will engage and be retained in position by the retaining rings 45. With the end of the tubular element generally contiguous to shoulder 45, the flexible assembly 33 provides a generally smooth cylindrical surface along and over which knitting stitches may freely slide. The body portion 42 may be relatively short, as shown in FIG. 7, or longer, as shown in FIGS. 1-5, as is desired. Another form of stem is illustrated at 44' in FIG. 7. As shown, the surface of the stem 44' is substantially smooth and its diameter is slightly greater than the inner diameter of the flexible tube 40 to provide a snug fit therebetween.

The end couplings 38 may take different forms as

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shown, for example, in FIGS. 7 and 8. The various parts described above may be substantially coaxial (FIG. 7) or the intermediate portion or body 42' may be bent slightly (FIG. 8) so that the threaded stud 46 is at a generally obtuse angle to stem 44. The angulated end coupling of FIG. 8 is particularly adapted to a short length circular knitting needle, for example, 14" or less, one end of which is illustrated in FIG. 4. It should be noted that no two knitters hold their needles the same way while knitting. Thus, when using a circular knitting needle assembled with the angulated end couplings 38', the knitter may find that the tips of her needles are not aligned to suit her. Simply twisting the end couplings in the tube 40 corrects this situation.

The flexible elements 40 are preferably in the form of an elongate hollow tube preferably constructed of vinyl plastic. The vinyl plastic is advantageously of the type which is very flexible and can stretch somewhat under tension. In this manner, when an end coupling 38 is inserted into the tube, the vinyl frictionally secures the coupling even when it is relatively smooth, as shown in FIG. 7. In an application similar to the Chinese finger trick, pulling on the end coupling only serves to reduce the diameter of the flexible element 40 and more securely holds the end couplings 38 in frictional engagement therein. Since the flexible element is tubular throughout its entire length, the flexible element may be cut to size by the user by cutting it to length, as with a razor blade, cutting out the end coupling 38 and pushing it into the new end of the flexible element 40. This procedure can also be used in case of a failure of the flexible tubing. The flexible members or assemblies 33, as shown in FIGS. 2-5, have an end coupling 38 at either end so that identical threaded studs 46 project from each end of the flexible member 33 for association with other components of the knitting kit to provide an assembled knitting apparatus suitable to the problem at hand. Thus, the needles 32 have axially internally threaded sockets 50 formed therein that are complementary to the studs 46 of the end couplings 38 so that the stud 46 at one end of the flexible unit 33 may be threaded into the socket 50 of such needle 32. At the other end of the flexible unit 33, may be associated another needle, as shown in FIG. 2, or a flanged stitch stop 62 as shown in FIG. 3. The flanged stitch stop 62 resembles a button like head that has an axially internally threaded socket 66 formed therein which is identical with the socket 50 previously described. The threaded stud 46 at the left end of the flexible unit may be threaded into the socket 66 of the stitch stop 62 to thus complete the straight needle assembly of FIG. 2. In an ordinary arrangement, the user would assemble two such straight needle assemblies to be used together.

While the flexible units 33 may be made up of any desired length, I prefer to employ a plurality of standardized lengths for example, 12, 14, 18, and 22 inches, so that by association of a single unit 33 with a needle 32, a straight knitting needle assembly 26 of appropriate length may be provided. Such standardized flexible units 33 may, however, be associated under this invention to provide other assemblies where greater length is desired. For this purpose, a female coupling 53 is provided, as shown in FIG. 6. The coupling 53 constitutes a relatively short cylindrical body having a diameter substantially equal to the diameter of the body 42 of the end couplings 38. The coupling has axially internally threaded sockets 54 in each to receive threaded studs 46 of the couplings 38 as shown in FIGS. 2 and 5. The body of the coupling 53 has a radial bore 55, as do the intermediate body portions 42 of the end coupling 38. Each bore 55 may be engaged by a small spanner wrench 56 when the couplings 38 and 53 are being connected or disconnected, as best shown in FIG. 2, or when the end coupling 38 is being connected or disconnected to a needle 32 or flanged stitch stop 62. In the embodiment illustrated, the spanner wrench 56 has a generally circular elongate

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body with a diameter slightly smaller than the diameter of bore 55. It is contemplated that different shapes and cross-sections can be utilized for the spanner wrench 56 and bore 55.

Because the flexible vinyl tubular element 40 is flexible, it will not kink or hold a permanent bend or set and, because of its tubular form, it is adapted for quick and easy repair in the home when this is required, as explained above. The flexible member serves, of course, to avoid the objectionable ravelling experienced in some prior circular needles, as well as disjoining in the manner experienced where chains have been used in the past. Additionally, the use of vinyl allows a simpler connection to one end coupling than has been possible in previous arrangements in the past.

When a number of stitches have been formed on a needle assembly such as needle assembly 24 shown in FIG. 2, these stitches may be conveniently held merely by pushing the stitches onto the flexible units 33, disconnecting the needles 32, and replacing them with interfitting flanged stitch stops 62 and 64. For this purpose, each of the flanged stitch stops has a threaded socket 66 and a button-like stitch-retaining flange 65. Additionally, the stitch stops 62 and 64 have a particularly advantageous interfitting arrangement. In the embodiment illustrated in FIG. 9, the interfitting arrangement comprises an annular upstanding boss 67 on the flange 65 of stitch stop 62 and an annular receiving member 68 on the flange of stitch stop 64. The boss 67 is arranged to snap into the receiving member 68 and be retained thereby, but is easily disengaged by the knitter as she desires. When the stitch stops are used at either end of a flexible member 33, an elongate stitch holder is formed; when these same stitch stops are interconnected, a circular stitch holder is found. It should be noted that this storage or holding operation is accomplished without the usual transfer of stitches from a needle to a stitch holder. It is contemplated that other forms and arrangements of interfitting stitch stops may be used.

An alternate means for making a circular stitch holder is illustrated in FIG. 10. The embodiment illustrated is in the form of a union-type coupler 72 comprising a pair of similar cylindrical bodies 74 which may be of the same diameter as the end coupling body 42 having an axial threaded socket 75 in one end to receive threaded studs 46 of end coupling 38. At the opposite end of each body 74 is an outward circular flange 76 which is held in face to face relationship with the other flange 76 by a flanged annular member 78. The annular member 78 holds the bodies 74 substantially coaxial and for rotation independently of each other. Radial bores 55 are conveniently formed in each body to receive spanner wrench 56 and thereby facilitate connection and disconnection to the end couplings 38.

From the foregoing description, it will be apparent that the present invention provides hand knitting apparatus whereby a kit having a relatively small number of inter-related parts or components enables the hand knitter to provide needle assemblies of either the straight or circular kind having the most advantageous length, and having needles of the desired size and with the desired tip. It should be apparent that the length of the needle assembly may be varied during the course of knitting merely by adding an additional flexible member to its length as required, for example, when a substantially triangular piece of knitting is being formed.

It will also be evident that under the present invention, the flexible portion of either the straight or circular needle assembly may be detached from the needles, and used as a stitch holder without transfer of the stitches. The flanged stitch stops utilized to form a substantially straight knitting needle as shown in FIG. 3, may be snapped onto an interconnecting stitch stop which replaces the needle to form the compact circular stitch holder of FIG. 5.

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The flexible members 33, of course, are an essential part of the kit 12, being utilized in each of the usable assemblies, and immediate access to them to be provided in accordance with the invention, by placing them in the uppermost portion of shelf 18. For this purpose, an arcuate recess 81 extends around through sides of the depression 20. A plurality of walls or partitions 82 are provided in the recess 81 to define a plurality of individual grooves for receiving a number of flexible units. So as to provide easy removal from the particular groove in which they reside, the walls 82 have a length less than the length of the recess 81 and conveniently terminate near the center, as at 83, in order to provide space for the fingers to reach in and remove the flexible units or cords.

In a similar manner, each of the shelves 18 and 22 has a recess 86 for holding a plurality of pairs of knitting needles 32. Each recess 86 has a plurality of partitions or walls 87 for conveniently defining a compartment for each pair of needles. Each partition 87 conveniently has a length less than the length of the needles to provide easy removal thereof. As illustrated in FIG. 1, each shelf may have a number adjacent each compartment to indicate the needle size therein contained.

Recesses are also provided for stitch stops 62 and 64, female couplings 53, and spanner wrench 56, and the recesses are conveniently oversized to permit ready removal and replacement. In the embodiment illustrated, generally circular grooves 88 are provided in each shelf for the stitch stops, and elongate grooves 89 are provided in each shelf for the female couplings and spanner wrenches.

Because the small size knitting needles have a greater tendency to be lost, and are more difficult to handle, they are preferably placed in the slots provided in the recess portion 20 of the main shelf 18. In accordance with the invention, the second shelf or tray 22 is substantially translucent and adapted to fit in the recess 20. Thus, when the translucent tray 22 is in place, the parts beneath the tray are protected from loss or misplacement; yet are readily seen by reason of the translucency. This permits visual inspection of the kit and immediate cognizance of availability or absence of any particular part of the kit. Thus, with a place for every part and every part in its place, the utility of the kit is greatly enhanced and the user may easily keep track of all particular parts.

While preferred embodiments of the invention have been illustrated and described herein, it is to be understood that this is by way of illustration and not limitation and that changes and variations may be made by those skilled in the art without departure from the spirit and scope of the appended claims and I do not wish to be limited except as required by the appended claims.

I claim:

1. A hand knitting kit comprising a plurality of pairs of knitting needles providing an assortment of different sizes, each needle having a tip at one end and a threaded axial socket at the end opposite said tip, a plurality of flexible units having a generally uniform outer diameter not greater than the smallest needle, said units comprising a flexible vinyl tubular member of predetermined outer and inner diameters and identical coupling members associated with opposite ends thereof, each said coupling member having an axial threaded stud at one end for engagement with a needle, an intermediate portion having an outer diameter generally equal to the outer diameter of said tubular member, and a stem at the other end frictionally secured to the inside wall of said tubular member, and at least one generally cylindrical female coupling having a diameter generally equal to the diameter of said intermediate portion of said coupling members and axial threaded sockets in opposite ends thereof for engagement with separate flexible units.

2. A hand knitting kit comprising a plurality of pairs of knitting needles providing an assortment of different sizes, each needle having a tip at one end and a threaded socket at the end opposite said tip, a plurality of flanged stitch stops each having a threaded socket therein, a plurality of flexible units having a generally uniform outer diameter not greater than the smallest needle, said units comprising a flexible vinyl tubular member having predetermined outer and inner diameters and identical coupling members associated with opposite ends thereof, said coupling members having axial threaded studs at one end for selective engagement to said needles and said stitch stops, an intermediate portion having an outer diameter approximately the outer diameter of said tubular member, and a stem at the other end frictionally secured to the inside wall of said tubular member.

3. The apparatus of claim 2 wherein each coupling member has a radial bore in the intermediate portion thereof, and including a wrench having one end shaped for engagement with said radial bore whereby the coupling member may be tightly secured to the threaded socket of the flanged stitch stops and needles.

4. A hand knitting apparatus comprising a knitting needle having a tip at one end and a threaded axial recess at the other, a flexible unit including a flexible vinyl tubular member of predetermined outer and inner diameter and identical coupling members associated with opposite ends thereof, each said coupling member having an axial threaded stud at one end, an intermediate portion having an outer diameter approximating the outer diameter of said tubular member, and a stem at the other end frictionally secured to the inner wall of said vinyl tubular member, one of said axial threaded studs threaded into said threaded axial recess of said needle, and means threaded onto the other axial threaded stud for defining the other end of the apparatus.

5. In hand knitting apparatus, an elongated flexible unit for selective engagement with knitting needles or stitch stops and comprising a flexible vinyl tubular member having predetermined outer and inner diameters, and identical coupling members associated with opposite ends thereof, each coupling member having an axial stem at one end inserted into said vinyl tubular member and attached thereto, an intermediate portion having a diameter equal to the outer diameter of said vinyl tubular member, and an axial threaded stud at the other end thereof, said intermediate portion having a radial bore therein for receiving the end of a wrench for engaging and disengaging said unit from the knitting needles and the stitch stops.

6. In hand knitting apparatus, a stitch holder comprising a pair of flanged stitch stops each having a threaded socket therein, a flexible vinyl tubular member having predetermined outer and inner diameters, identical coupling members associated with opposite ends thereof, each coupling having an axial stem at one end inserted into said vinyl tubular member and frictionally secured thereto, an intermediate portion having a diameter generally equal to the outer diameter of said vinyl tubular member, and an axial threaded stud at the other end thereof, said threaded stud of each coupling member threaded into the threaded socket of one of said flanged stitch stops, and means on said flanged stitch stops for retaining them in juxtaposition.

7. The apparatus of claim 6 wherein each flanged stitch stop comprises a generally cylindrical body having said threaded socket located axially thereof, a generally cylindrical head axially attached to said body and having a diameter larger than the diameter of said body, and said last-mentioned means comprises a substantially annular member having a generally U-shaped cross-section for holding said flanged stitch stops with their heads in juxtaposition and their threaded sockets generally coaxial, and so constructed and arranged that one flanged stitch stop may be turned about said axis and relative to the other.

8. In hand knitting apparatus, a stitch holder comprising an elongate flexible unit adapted to receive a plurality of stitches, a first stitch stop having means for detachably connecting to one end of said flexible unit and means defining an outwardly extending portion, a second stitch stop having means for detachably connecting to the other end of said flexible unit and receiving means for lockingly engaging said extending portion.

9. In hand knitting apparatus, a stitch holder comprising an elongate flexible unit for slidably receiving a plurality of stitches, a first stitch stop including a generally cylindrical head having a diameter larger than said flexible unit, means for detachably connecting to one end of said flexible unit, and an upstanding boss on said head, and a second stitch stop including a generally cylindrical head having a diameter larger than said flexible unit, means for detachably connecting to the other end of said flexible unit, and a receiving member on said head for lockingly engaging said upstanding boss thereby securing said first and second stitch stops together.

10. In a hand knitting apparatus the combination of: a flexible tubular member of vinyl material and having predetermined outer and inner diameters, and identical coupling members associated with opposite ends of the tubular member, each coupling member including a cylindrical intermediate portion having a diameter equal to the outer diameter of said tubular member, an axial stem at one end of the intermediate portion inserted into said tubular member and frictionally secured to the inner wall thereof, the end of the tubular member being contiguous to said one end of the intermediate portion to provide a smooth joint therebetween, and an axial threaded stud at the other end of the intermediate portion.

11. In a hand knitting apparatus, the combination of: a flexible tubular member of vinyl material and having predetermined outer and inner diameters, and identical coupling members associated with opposite ends of the tubular members, each coupling member including an intermediate portion having a generally circular cross-section of a diameter equal to the outer diameter of said tubular member, an axial stem at one end of the intermediate portion inserted into said tubular member and frictionally secured to the inner wall thereof, the end of the tubular member being contiguous to said one end of the intermediate portion to provide a smooth joint therebetween, an axial stud at the other end of the intermediate portion, and said intermediate portion being curved between its ends so that the stem is at an obtuse angle with respect to the stud.

12. A hand knitting apparatus as set forth in claim 7 wherein said stem has a generally smooth surface and a diameter slightly greater than the inner diameter of the tubular member to provide a snug frictional fit with the inner wall thereof.

13. A hand knitting apparatus comprising a knitting needle having a tip at one end and a threaded axial recess at the other, a flexible unit including a flexible plastic tubular member of predetermined outer and inner diameters and coupling members associated with opposite ends thereof, each coupling member having an axial threaded stud at one end, an intermediate portion having an outer diameter approximating the outer diameter of said tubular member, and a stem at the other end frictionally secured to the inner wall of said tubular member, the axial threaded stud of one coupling member threaded into said threaded axial recess of said needle, said one coupling member having a transverse bore in its intermediate portion for receiving the end of a wrench pin whereby the coupling member may be tightly secured to the knitting needle, and means threaded onto the axial threaded stud of the other coupling member for defining the other end of the apparatus.

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**UNITED STATES PATENT OFFICE**  
**CERTIFICATE OF CORRECTION**

Patent No. 3,280,595

October 25, 1966

Lorraine A. Linstead

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 7, line 46, for "ot" read -- to --; column 8, line 50, for the claim reference numeral "7" read -- 4 --.

Signed and sealed this 12th day of September 1967.

**(SEAL)**

**Attest:**

**ERNEST W. SWIDER**

**Attesting Officer**

**EDWARD J. BRENNER**

**Commissioner of Patents**