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KNITTING NEEDLE CONNECTOR

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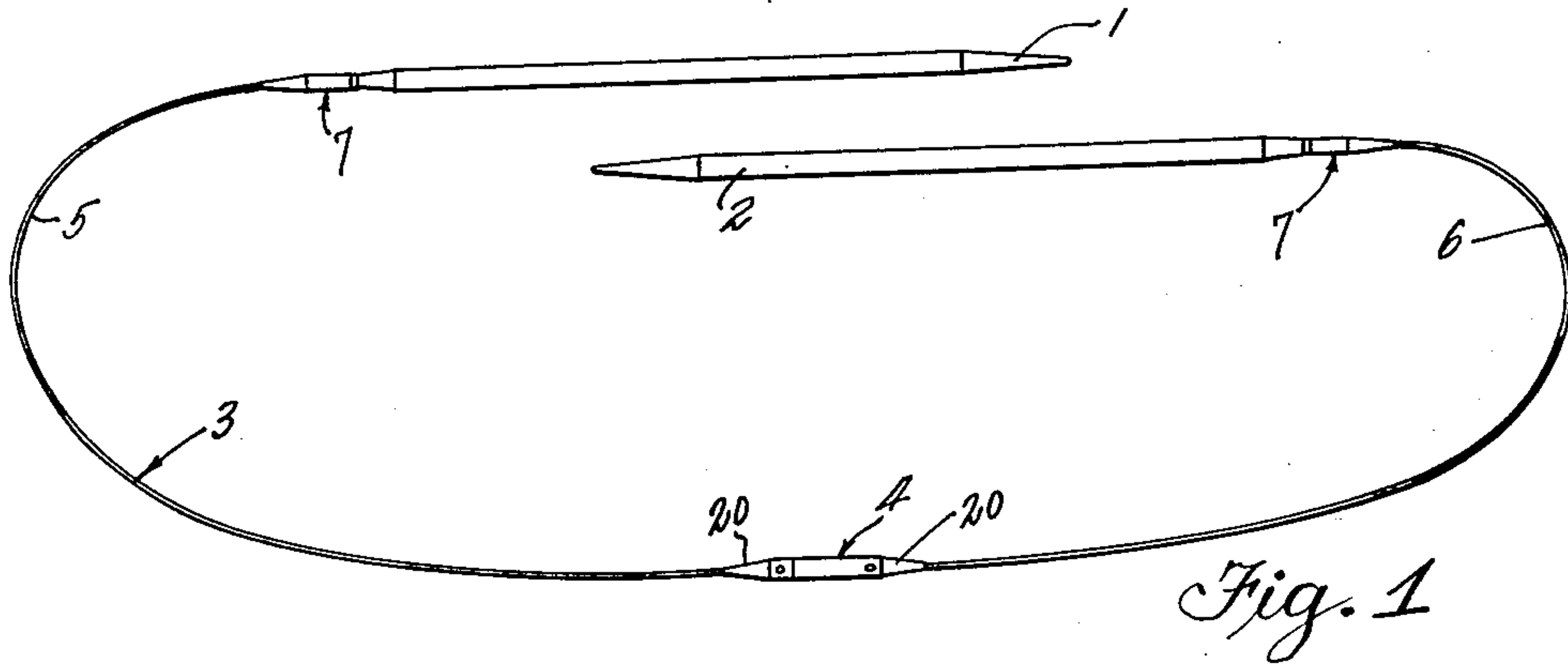


Fig. 1

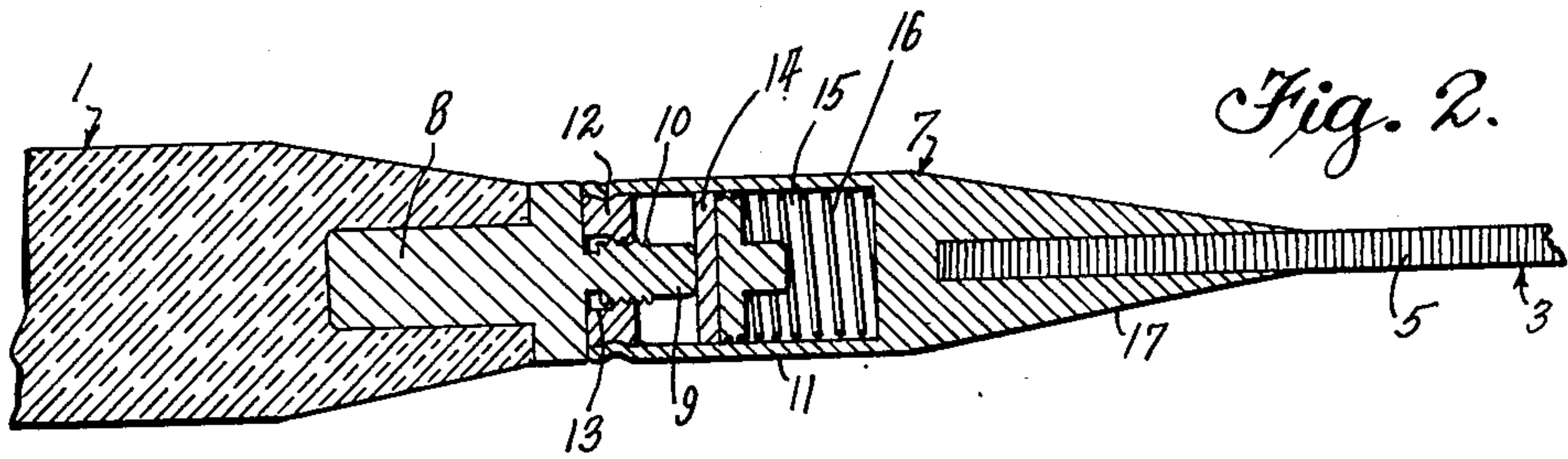


Fig. 2.

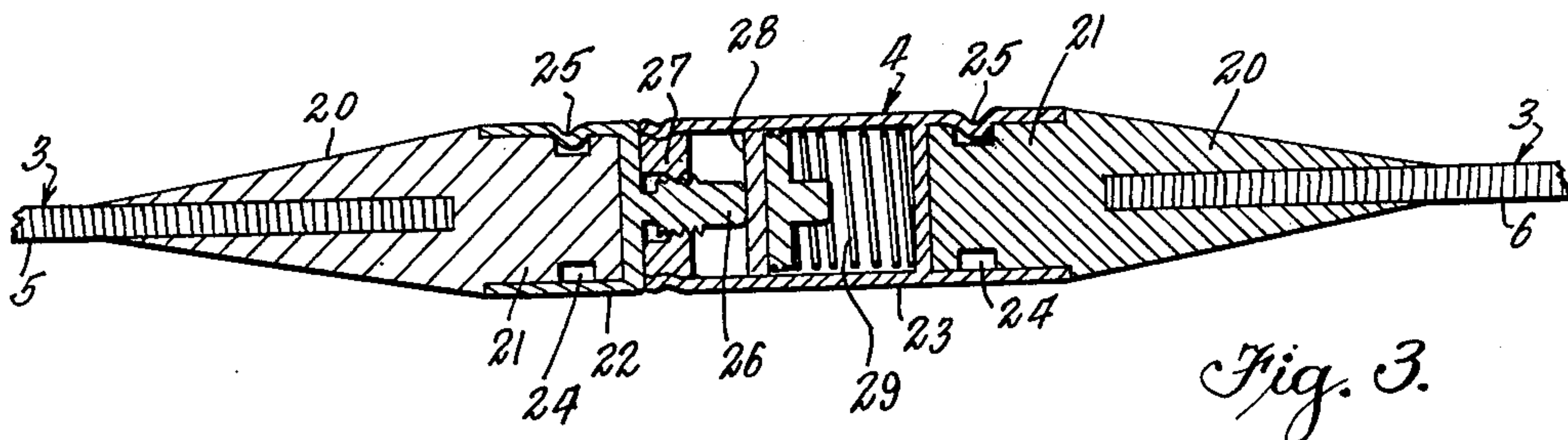


Fig. 3.

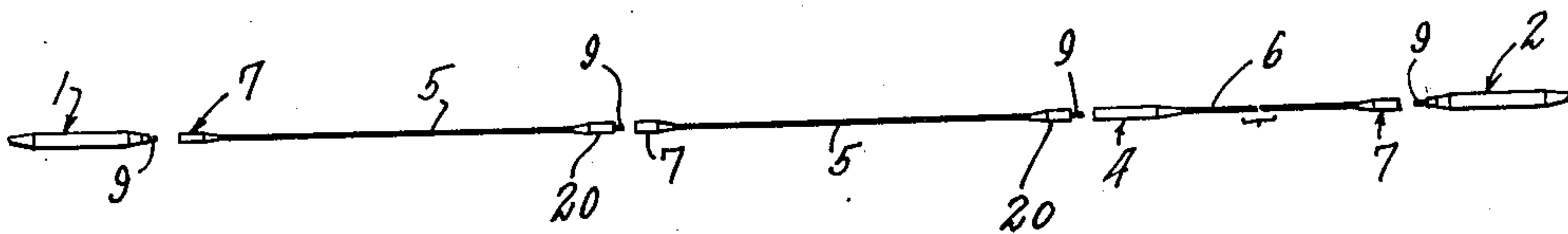


Fig. 4.

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KNITTING NEEDLE CONNECTOR

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4 Claims. (Cl. 66—117)

This invention relates to knitting needle connectors, and more particularly to a releasable connection for connecting the respective parts of a composite knitting needle together.

5 It is an object of this invention to provide a connector for use in detachably connecting points to a knitting needle cable.

Another object of this invention is to provide a connector for releasably connecting together 10 the sections of a flexible cable as utilized in the connecting together of a pair of knitting points whereby the length of the cable between the points may be easily and conveniently changed at will.

15 Another object of this invention is to provide a connector for use in releasably connecting a knitting needle point so as to permit the substitution, change or replacement of the knitting needle point as desired, and which connector is of easy manipulation and is so constructed as to 20 avoid possibility of interfering with the free passing of the knitted yarn over the connection as provided.

Another object of this invention is to provide 25 a connector for releasably connecting a knitting needle point with a flexible cable or other knitting needle point connecting means wherein there is provided a releasable connecting means which is of easy manipulation, and a means capable of resisting the disconnection of the knitting needle 30 point from the cable or connecting means when it is not desired to be disconnected.

Other objects and advantages of this invention it is believed will be apparent from the hereinafter contained description of my invention 35 as the same is applied to the illustrations thereof made in the accompanying drawing for the purpose of giving a clear explanation of my invention.

In the drawing:

40 Figure 1 is a view illustrating a knitting needle and flexible coupling combination embodying my invention.

Figure 2 is a sectional elevation of the connector mechanism embodied in my invention illustrating the same as interposed between the 45 needle point and the flexible cable or connecting means.

Figure 3 is a sectional elevation illustrating the combined swivel and connector mechanism as 50 positioned within the cable between the knitting points.

Figure 4 is an exploded view illustrating the connector mechanism embodied in my invention 55 as so connected in the flexible cable as to permit of the adding of extensions thereto as desired in order to vary the length of the flexible cable or connecting means between the knitting points.

In the preferred embodiment of my invention 60 as illustrated in the accompanying drawing, 1

and 2 indicate knitting points which may be of any suitable or desirable construction and which are releasably connected with a flexible cable 3. Mounted between the ends of the points 1 and 2, and preferably within the cable 3, is a swivel connection 4 which may be of any suitable or desirable construction as, for example, is illustrated in my copending application, Serial No. 213,794, filed June 15, 1938, for Knitting needle, which permits of relative rotation of the sections of 10 the flexible cable and consequently the points 1 and 2 preventing the placing upon the cable of a strain, or the "winding up" of the cable as the knitting needles are manipulated during knitting. 15

In knitting, where different colors of yarn are utilized, it is very advantageous to use knitting points of colors which contrast with the color of the yarn being utilized. This not only relieves the strain upon the eyes, but enables the knitting 20 to be carried out more efficaciously and rapidly. Thus it is desirable that the points 1 and 2 be releasably coupled with the cable 3 so as to permit the changing of these points easily and quickly when different colored yarns are employed. 25

In knitting different forms of garments and many times as the knitting proceeds over different portions of a garment or article being knit, it is desirable that the length of the cable 3 between the points 1 and 2 be changed in order 30 to accommodate the number of stitches required to be knit for the particular portion of the garment. Thus when knitting is performed requiring the casting upon the needles of a large number of stitches, it is desirable that the cable 3 be so formulated as to permit the elongation of the cable in order to accommodate the large number of stitches required. Conversely, when the portion of the garment is reached such, for example, as the collar, sleeves, or other small portions thereof, it is desirable that the length of the cable be retracted so that only that amount of cable need be used as is required to carry the requisite number of stitches. 45

In order to accomplish these requirements, I have divided the knitting needle up into its component parts, consisting of the points 1 and 2, and have divided the cable or flexible coupling means between the points 1 and 2 into sections 5 and 6 which are coupled together by means of the coupling and swiveling connector 4 between the cable sections and the points 1 and 2. 50

I have also provided the releasable coupling 7 by the medium of which the points 1 and 2 55 may be easily and conveniently removed and replaced as required. The connector 7 as herein illustrated includes where, as indicated, the points are formed of such material as Bakelite or other similar materials, an insert 8 which 60

carries a connecting pin 9. This pin 9 has, over a limited portion of its length, threads 10 whereby the point is releasably threaded to the companion coupling member socket 11, preferably at a corresponding limited threaded section 12. The purpose of forming the threads 10 and 12 of a limited extent of in the neighborhood of two or three threads each, is to insure an easily releasable coupling where there is no possibility of the threads of themselves binding.

With this form of construction it is desirable to provide a means for preventing the free relative rotation of the point 1 with reference to the coupling socket 11 so that unless intentionally removed, the point 1 will not unthread itself from the connecting socket 11. In accordance with the preferred form of my invention, this is accomplished by having the pin 9 project through the bore 13 of the coupling socket 11 to engage a friction washer or member 14 mounted within the enlarged cavity 15 of the connecting socket 11. This friction washer 14 may have knurling or other added friction-resisting means upon its surface and may closely fit within the cavity 15 so that it normally does not turn therein.

In order to prevent the free rotation of the point 1 with reference to the coupling member 11, the pin 9 engages this washer 14, and the washer 14 is thrust forward in the cavity 15 by means of a spring 16 which acts through the washer 14 to bind the threads 10 and 12.

The coupling member 7 may be tapered at the section 17 down to the diameter of the flexible cable 5 so that no shoulder is formed between the cable 5 and the point 1 which would tend to catch the stitches of the yarn as they are passed either from the point 1 onto the cable 5 or as reversely passed during the knitting process from the cable 5 over the point 1.

In Figure 3 there is particularly illustrated the combined coupler and swivel 4 which is interposed between the sections 5 and 6 of the cable 3. In this view it will be seen that there may be included a releasable coupling mechanism of exactly the same form as that described in connection with the releasable coupling of the points 1 and 2 with the cable sections 5 and 6. The coupling member 4 provides a double swivel and the releasable coupling is formed between the swivel connections. Thus the coupling member 4 includes a pair of adapters 20 which may be tapered down to the size of the cable 3 as indicated and which have a swivel section of reduced diameter 21 whereby they extend into the swivel recesses formed in the members 22 and 23. The swivel sections 21 are formed with the annular grooves 24 into which a portion of the members 22 and 23 are peened as illustrated at 25 to form a connection permitting rotation but preventing longitudinal movement.

The member 22 is formed with a pin 26 which may correspond in construction and function to the pin 9 in that it is threaded into the threaded block 27 at limited threaded sections and projects beyond the threaded block 27 to engage the thrust washer 28 which is thrust forward through the medium of the spring 29 carried within the member 23. Thus the connector 4 may be broken between the swivels as thus provided, leaving a swivel connection on each part of the broken connection.

In Figure 4 I have illustrated the sections of the cable and knitting points as in disconnected position so that the adaptability of the cable

sections and knitting points to elongate or contraction of the length by addition or removal of sections of cable is illustrated. It will thus be clearly seen that only one section of cable 3, for example, the section 6, is required, and that the point 1 may be directly connected with the coupling 4, leaving both the releasable connections and the swivel means interposed between the points 1 and 2.

This direct connecting of the point 1 to the connector 4 is resorted to when only a short section of the cable is desired as, for example, in the knitting of collars, sleeves, cuffs, or the like, requiring only a short cable section. It will also be apparent from Figure 4 that when it is desired to have a cable of greater length than that illustrated in Figure 1, that more sections 5 may be connected together to lengthen out the cable 3 as desired.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details herein set forth, but my invention is of the full scope of the appended claims.

I claim:

1. In a device of the class described, the combination of a flexible coupling member, knitting points adapted to be releasably connected to the opposed ends thereof, and coupling members interposed between the flexible cable and the knitting points for releasably connecting the points to the cables, said coupling members including a threaded connecting means, a thrust member, and spring means adapted to impose a binding thrust upon the said threaded connection whereby resistance to the disconnection of said members at said threads is provided.

2. In a device of the class described, the combination of a connecting member having at one end an axial cavity, a thrust spring mounted in said cavity, a friction member engaged by and thrust axially of said cavity by said spring, a second connecting member having a portion adapted to be extended into said cavity, means for releasably connecting said first and second connecting members whereby one of said connecting members engages the friction member to impart resistance to the disconnection of said members.

3. In a device of the class described, the combination of a connecting member having an axial cavity therein, a thrust spring mounted in said cavity, a friction member engaged by and thrust axially of said cavity by said spring, a second connecting member having a portion adapted to be extended into said cavity to engage said friction member, means interposed between said connecting members for releasably coupling the same together upon relative rotation of said connecting members, and whereby relative rotation of said connecting members is resisted by the said friction thrust member to prevent accidental disconnection of said connecting members.

4. In a knitting needle, the combination of a pair of points, a flexible cable, means for releasably connecting the points to the flexible cable, and a releasable connecting and swivel member mounted in the cable including swivel means whereby one section of the cable may be rotated with reference to the other, and including a releasable connection between the connector and one cable section whereby the number of cable sections interposed between the knitting points may be varied at will.