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TENSION DEVICE FOR HAND-KNITTING AND CROCHETING

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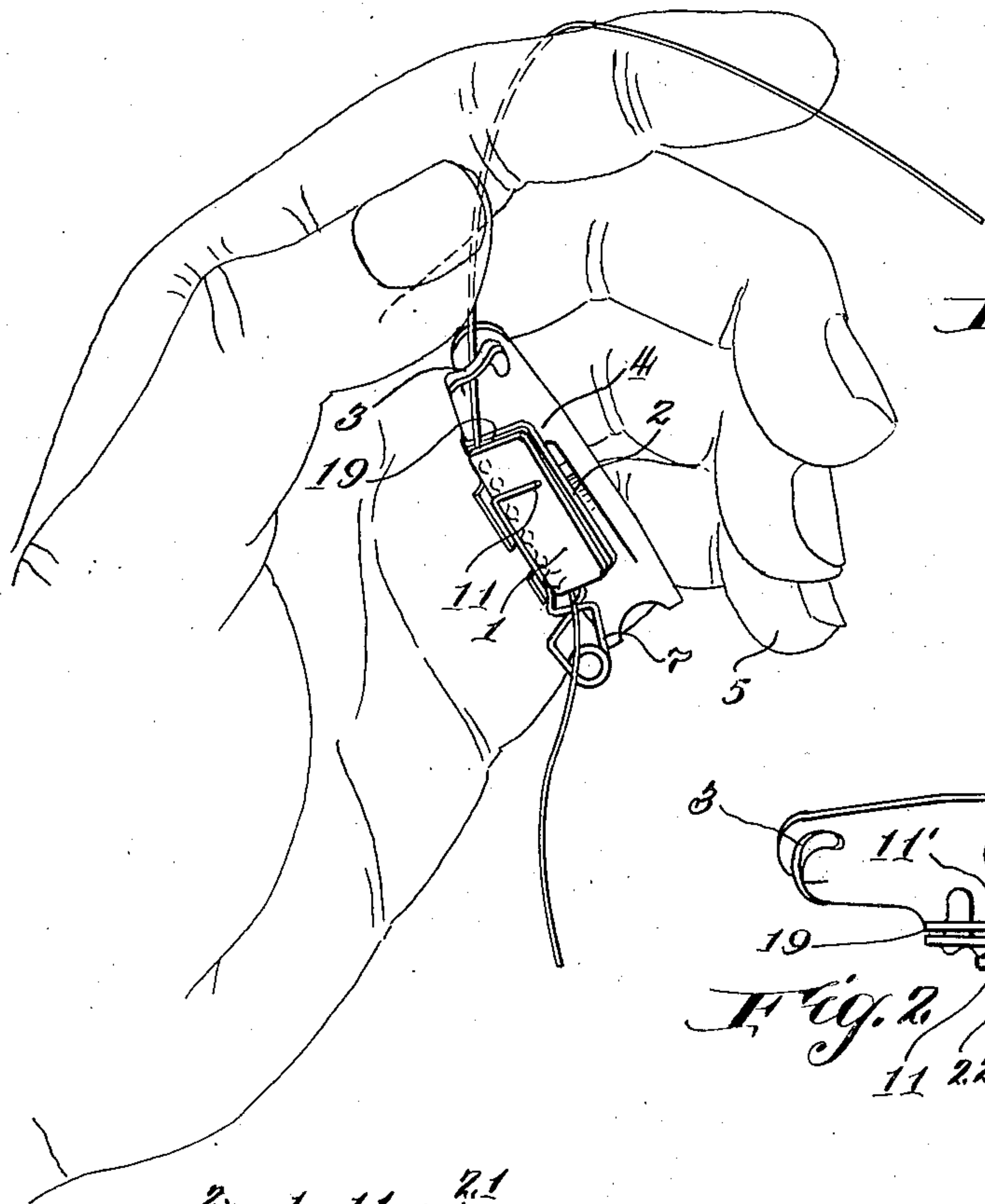


Fig. 1.

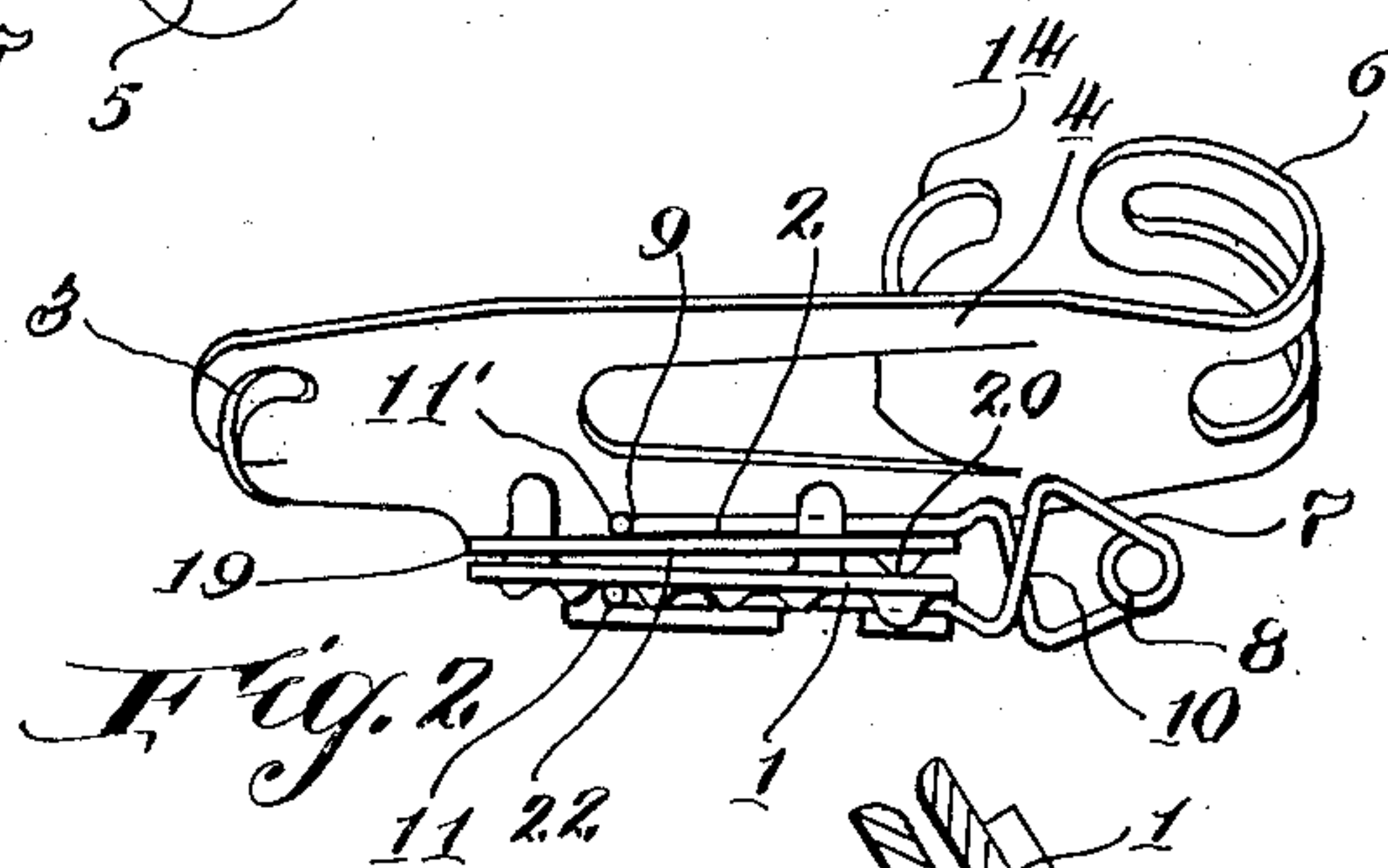


Fig. 2.

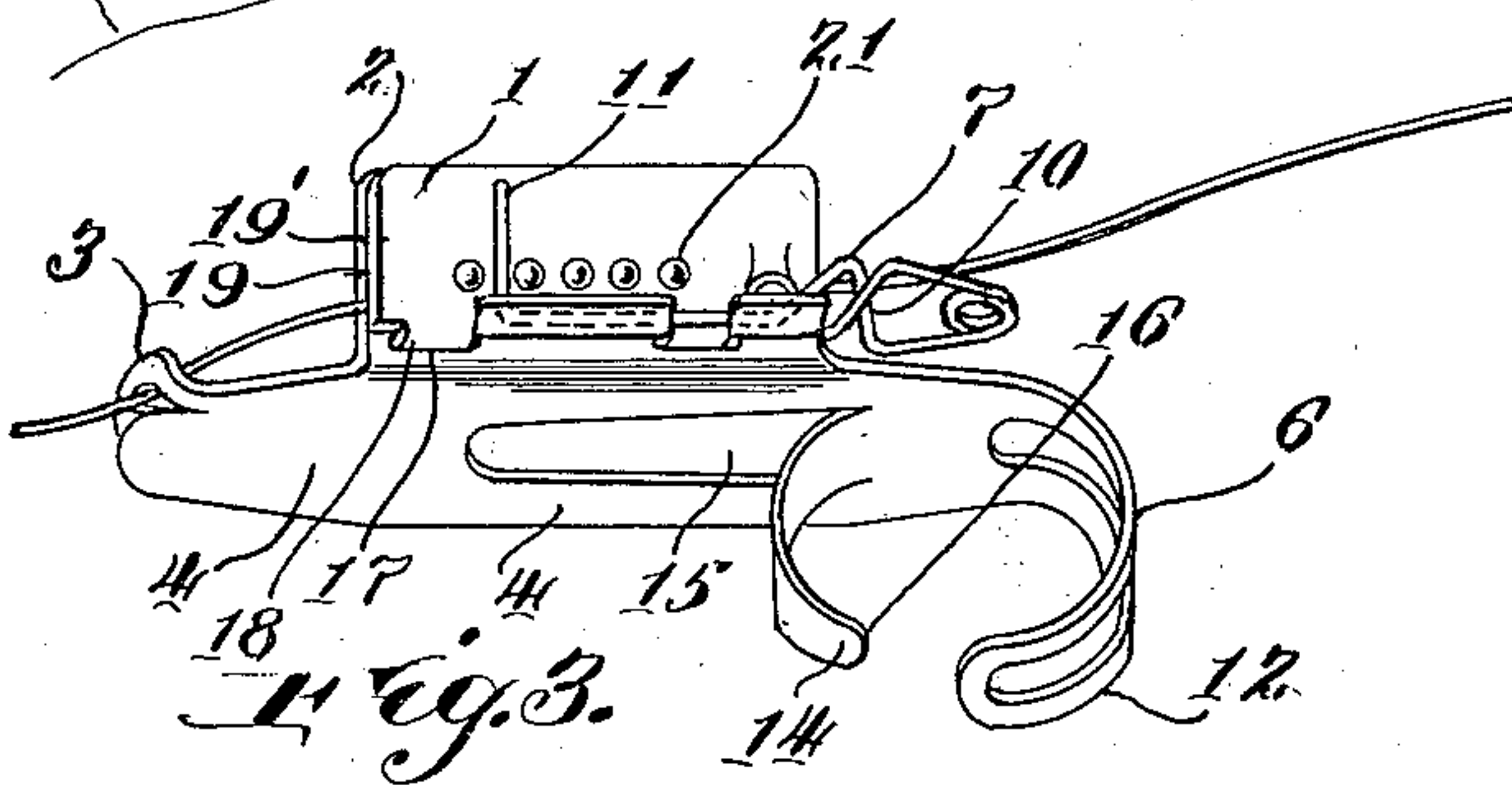


Fig. 3.

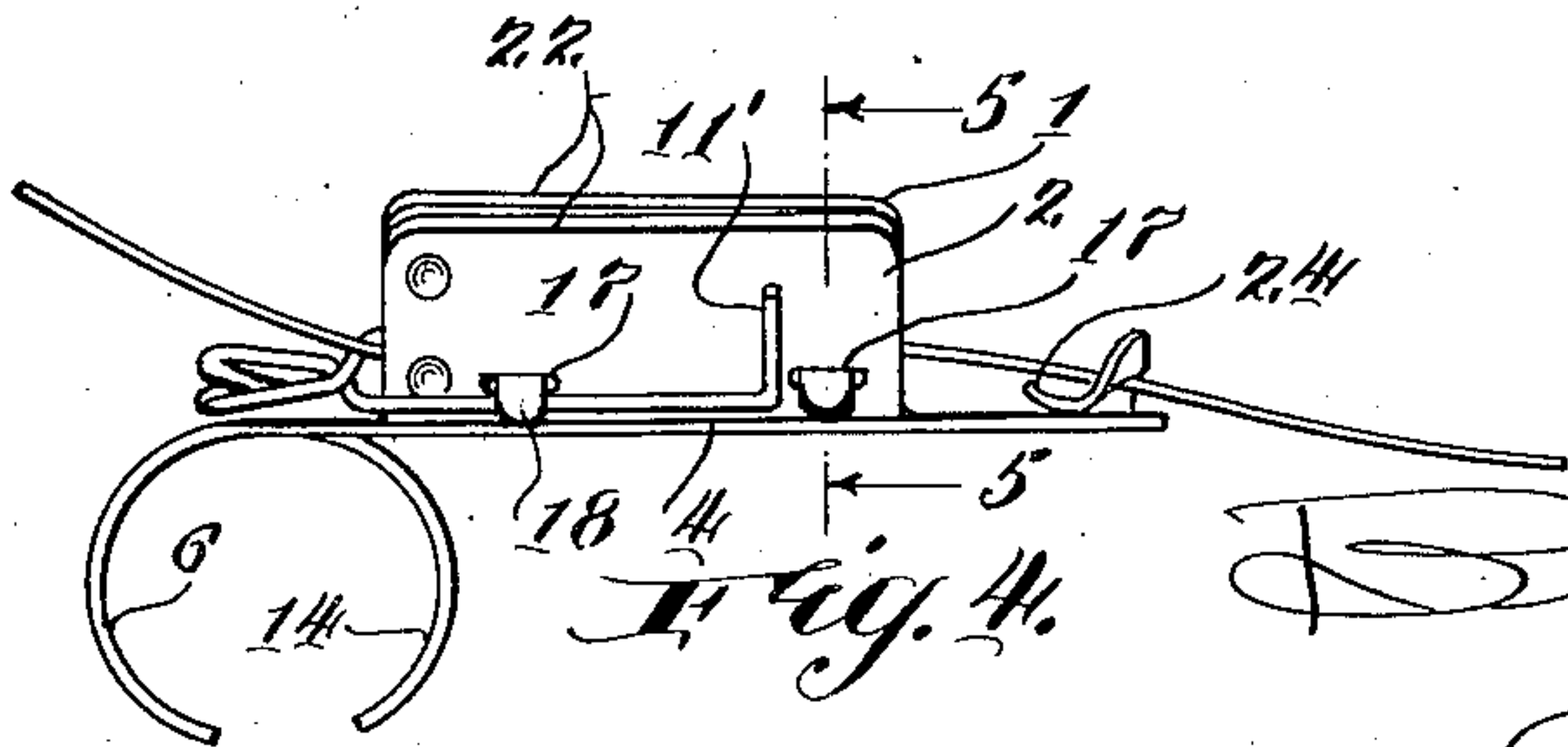


Fig. 4.

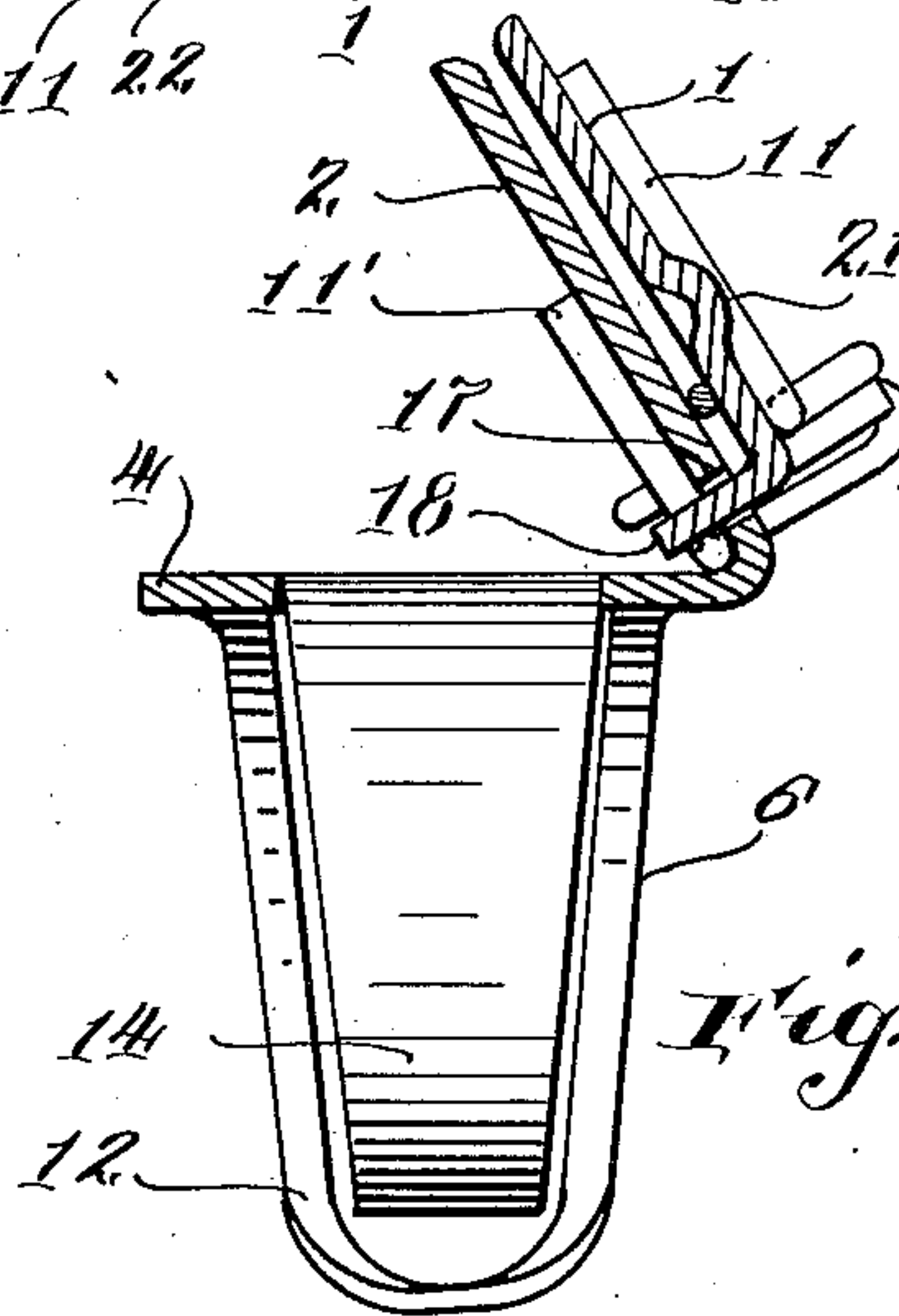


Fig. 5.

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TENSION DEVICE FOR HAND KNITTING
AND CROCHETING

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6 Claims. (Cl. 242-149)

In the process of hand knitting, crocheting and the like, a considerable portion of the skill which is requisite to a satisfactory product is involved in maintaining a uniform tension of the yarn or worsted in order to give uniformity of texture of the product. The ability to maintain this uniformity of tension is only acquired by long practice, and even then is only maintained by close attention to the work in hand. Also, the use of the fingers in maintaining the tension of the yarn has a tendency to tire the hand, limiting the period of effective work and close attention to the texture of the product, resulting in eye strain, particularly when the work is fine.

In order to enable those lacking in practice and the high degree of skill ordinarily required to produce satisfactory work, and even with skilled workers to avoid the weariness incident to regulating the tension by hand, I have provided an automatic tension device for use in hand knitting which maintains automatically a uniform tension and hence uniformity of texture, without the necessity for any exercise of skill or any close attention to the texture of the product.

The device consists of a simple, easily adjusted automatic tension which is preferably combined with a yarn guide in suitable relation thereto, the tension device and yarn guide being in accordance with the preferred practice mounted on a support for attachment to the hand, the whole being so simply devised and capable of such cheap construction that it is adapted for distribution at a low price, and for manufacture cheaply in large quantities.

In the accompanying drawing I have illustrated a hand tension device embodying the features of my invention in the preferred form.

In the drawing:

Figure 1 is a perspective view of the tension device attached to the hand in operative position and showing a convenient manner of feeding yarn, worsted or thread therefrom to the work.

Figure 2 is a side view of the same.

Figure 3 is a view looking upwardly at the device as seen in Figure 2 and slightly distorted for convenience of illustration.

Figure 4 is a view looking downwardly at the device as seen in Figure 2.

Figure 5 is a section on the line 5, 5 in Figure 4, looking in the direction of the arrows.

Referring to the drawing by numerals, each of which is used to indicate the same or similar parts in the different figures, the construction shown comprises a tension means shown in the form of members or plates 1 and 2, and spring 7,

a yarn guide 3 and a support of any suitable construction shown in the form of a base plate 4. This support may be held in any preferred manner. As shown in Figure 1 it is secured to the fourth or little finger of the hand at 5 by means of a spring ring 6 shown as but not necessarily formed integral with the body member or base plate 4.

The tension members 1 and 2 are held in operative relation to each other and to the work by the spring 7 which is shown in the form of a fork. This, in the form of the invention shown, consists of a spring wire formed into a coil 8, and two parallel arms 9 which are crossed at adjacent the coil and extend forwardly therefrom in converging relation, being turned at right angles to the arm 9 near their ends at 11, 11', said ends bearing on the tension members or plates 1 and 2 on their respective outside surfaces.

More specifically described as to the preferred form shown, the spring ring 6 which secures the support or base plate 4 to the finger consists of two strips of sheet metal, one indicated by reference character 12 being the end of the base plate 4 and the other indicated by reference character 14 being cut from the base plate, leaving a slot 15 which extends oppositely to said end. The strips 12 and 14 are bent toward each other on substantially circular arcs, being in the form of the invention shown though not essentially spaced at their ends at 16 so as to substantially enclose the finger and being adapted to be bent at will to fit the wearer.

The tension member 2 as shown consists of a small rectangular plate shown as integral with the support or base plate 4. This tension member or plate 2 is bent up at an angle to the base plate which in the form shown is about sixty degrees, see Figure 5, though this angle may be varied to suit the manufacturer, or it may be changed by bending the plate to suit the user. This tension plate or member 2 as shown is slotted at 17 at 2 points at its edge adjacent the base plate and preferably in parallelism with the base plate, and the tension member or plate 1 is provided with projecting tongues or tabs 18 which are turned substantially at right angles to said plate and passed through the slots 17 forming a loose connection between the plates. These are maintained in operative relation by the spring fork 7, being further positioned by the slot and tongue connection 17, 18, the spring arms 9 being caused to straddle the two plates, the respective arms 9 engaging the respective plates from the

outside. In accordance with the pressure arrangement, plates 1 and 2 are placed in converging relation so that they converge toward the yarn guide 3 as best illustrated in Figure 2, the tension being preferably applied to the yarn by pressing the yarn between the edges of the plates where they come in closest relation to each other at their edges 19.

It may be noted as shown in Figure 2 that the coil 8 of the spring fork 7 is at the opposite end of the plates from said edges, the fork extending from this opposite edge along the plates toward the tension point or point of pressing the yarn, hereinafter referred to as the compression point 19'.

In order to properly space the plates at the end remote from the compression point, 19, one of the plates, in the illustration plate 2, may be provided with a protuberance at 20, see particularly Figure 2, which engages the other plate 1, and provides a definite spacing at this point, though the plates are preferably otherwise shaped to thus converge.

In order to give the desired adjustment of the tension, a series of positioning points 21 may be provided on the outside of one of the plates for engagement by the turned up end 11 of the spring fork. This turned up end 11 is located between any two of the points or protuberances 21.

In assembling the tension device the plate 1 is first placed in operative relation to the plate 2 by folding the plate 1 substantially parallel to plate 2 and passing the tongues 18 through the slots 17. The spring fork 7, the arms of which when removed from the plates are relaxed are normally crossed, is then opened by spreading said arms slightly apart and caused to straddle the plates near their edges adjacent the base plate or body member 4 at the end of the plates opposite the guide 3, the turned up ends 10, 10' of the arms 9, bearing against the outside surface of plates 1 and 2, the form spring 7 is pushed to the left as seen in Figures 2 and 3 to the desired adjustment. To increase the tension the spring is advanced to the left, being held in adjusted position by the points 21, positioning the turned up end 11 between two of which it is seated.

To thread the device the yarn or worsted is entered between the plates at their outer edges at 22, drawn toward or beyond the centers of the plates and threaded through the guide 3 which is in the form of a hook formed from a strip cut from the edge of the plate but with its end 24 adjacent the plate as shown. This spacing of the end provides for entering the thread, yarn or worsted within the hook so that the latter serves its guiding function. The device having been duly threaded, is placed in the inside of the hand, the ring 6 being engaged with the fourth or with the third finger if desired or it is attached and arranged in any convenient manner, the hook 3 being preferably adjacent the first finger so that the yarn may be drawn upwardly over the first finger, and, if desired, over the thumb, from which point it is fed outwardly to the work, being drawn forwardly as consumed with a predetermined tension which as aforesaid is exerted at the compression edges of the blade 1 and 2 at 19, being regulated by the position of the spring fork 7 already described.

I have thus described specifically and in detail a hand tension for knitting or crocheting, embodying the features of my invention in the preferred form, the description being specific and in detail in order that the manner of constructing,

applying, operating and using the invention may be clearly understood, however, the specific terms herein are used in a descriptive rather than in a limiting sense, the scope of the invention being defined in the claims.

What I claim as new and desire to secure by Letters Patent is:

1. An automatic tension device for use in the process of hand knitting or crocheting, comprising means for securing the device to the hand, a pair of plates carried in registration between which plates the yarn, worsted or thread is led, one of said plates being mounted to move relatively to the other, said plates being arranged in converging relation toward one end so that the two edges tend to meet in advance of the remainder of the plates, and a spring for pressing said plates together, applying uniform compression and uniform tension to the yarn, worsted or thread as it is drawn between said plates in the said hand process.

2. An automatic tension device for use in the operation of hand knitting or crocheting comprising a support, means for securing the same to the hand of the operator, and tension means comprising two members mounted on said support between which members the material is led, one of said members being mounted to move toward and from the other said member, and a forked spring straddling the plates tending to press one plate into contact with the other to apply uniform pressure to the material between said members and hence applying a uniform tension thereto as it is drawn forward between said members in the said operation.

3. An automatic tension device for use in the hand operation of knitting or crocheting, means for securing the device to the hand of the operator, tension means comprising a pair of plates between which the material is led, one of said plates being movable relatively to the other, said plates being arranged in converging relation toward one end so that the two edges tend to meet in advance of the remainder of the plates, a forked spring straddling the plates tending to press one plate into contact with the other, applying a corresponding pressure at said edges to the material as it is drawn between the plates in said operation, and hence applying to said material a uniform tension.

4. An automatic tension device for use in the hand operation of knitting or crocheting, comprising a support, means for securing the support to the hand of the operator, tension means on said support comprising a pair of plates between which the material is led, one of said plates being mounted to swing relatively to the other about an axis, said plates being arranged in converging relation in the direction of said axis so that the corresponding edges of said respective plates which are substantially transverse to said axis tend to meet in advance of the remainder of the plates, a forked spring straddling the plates tending to press one plate into contact with the other, applying a corresponding pressure to the material as it is drawn between the plates in said operation, hence applying to said material a uniform tension.

5. An automatic tension device for use in the hand operation of knitting or crocheting, comprising a support, means for securing the support to the hand of the operator, tension means on said support comprising a pair of plates between which the material is led, one of said plates being mounted to swing relatively to the other

about an axis, said plates being arranged in converging relation in the direction of said axis so that the corresponding edges of said respective plates which are substantially transverse to said axis tend to meet in advance of the remainder of the plates, a forked spring straddling the plates tending to press one plate into contact with the other, applying a corresponding pressure to the material as it is drawn between the plates in said operation, hence applying to said material a uniform tension, said spring being slidable in the direction of its length to vary the tension.

6. An automatic tension device for use in the hand operation of knitting or crocheting, comprising a support, means for securing the support to the hand of the operator, tension means

on said support comprising a pair of plates between which the material is led, one of said plates being movable relatively to the other, said plates being arranged in converging relation toward corresponding edges so that said edges tend to meet in advance of the remainder of the plates, a forked spring straddling the plates tending to press one plate into contact with the other, applying a corresponding pressure to the material as it is drawn between the plates in said operation, and hence applying to said material a uniform tension, said spring being slidable in the direction of its length to vary the tension, the plates having means for locating the spring in different positions of adjustment to give different predetermined degrees of tension.

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