

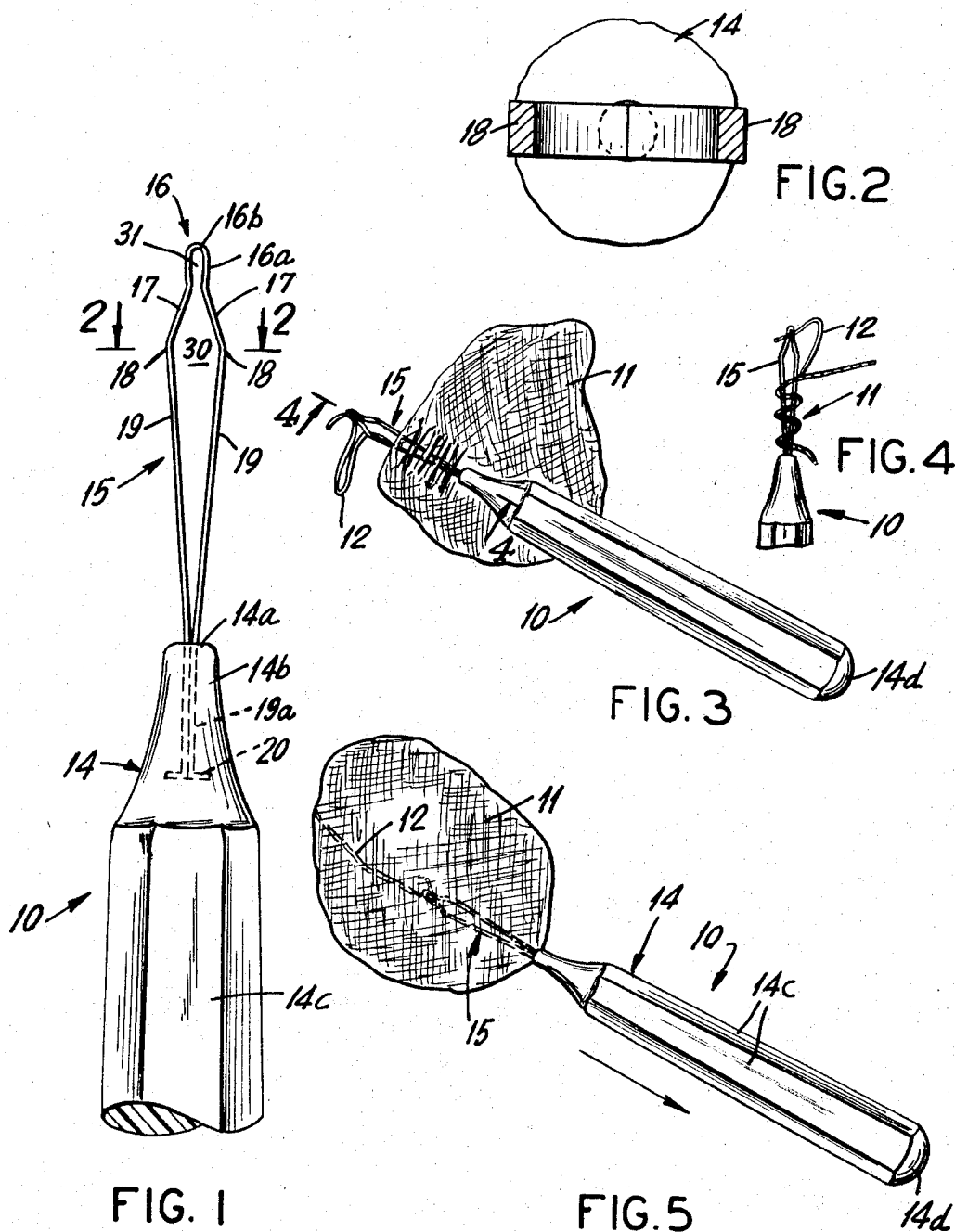
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THREAD PULLING NEEDLE DEVICES

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ABSTRACT OF THE DISCLOSURE

A thread pulling needle adapted to be passed through a textile fabric and having a closed loop provided with a wide opening in communication with an elongated restricted width tip passage. The tip passage is of a dimension smaller than the thickness of a thread so that a loose thread can be inserted into the enlarged opening and moved into the tip to be gripped therein and pulled back into the fabric.

This invention relates to thread pulling needle devices.

An object of this invention is to provide a device of the character described comprising means for piercing and threading through flexible textile fabric, back and forth from side to side, such devices having means to grip ends of loose threads extending from the fabric and to pull them through the fabric as the device is retracted, to interweave the loose threads into the fabric so that they do not show or hang out of the fabric. This device may be used for knitwear, hooked rugs, embroidery and the like fabrics. This device can also be used to pull additional threads through a piece of said fabric.

Another object of this invention is to provide a device of the character described in which the piercing and gripping needle is made of spring wire and is relatively stiff or rigid and strong enough to pierce the fabric, and has a front U-shaped tip to grip the thread, and from which extends an enlarged opening into which one end of the thread may be inserted and moved into the narrow U-shaped gripping tip, said element being long enough to be threaded through a section of the fabric which is long enough to hide relatively long threads pulled through said threaded section of the fabric.

Yet another object of this invention is to provide a device of the character described having a handle in which the terminal ends of the piercing needle are embedded, said handle having flat sides, to aid in manipulating said device.

Still another object of this invention is to provide a strong and durable device of the character described which shall be inexpensive to manufacture, easy to manipulate and yet practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts, which will be exemplified in the construction hereinafter described, and of which the scope of invention will be indicated in the following claims.

In the accompanying drawings in which is shown an illustrative embodiment of this invention,

FIG. 1 is a partial side elevational view of a device embodying the invention;

FIG. 2 is a cross-sectional view taken on line 2—2 of FIG. 1;

FIG. 3 is a perspective view of the device in use, after threading the device through a piece of fabric and prior to pulling the loose thread into the fabric;

FIG. 4 is a cross-sectional view taken on line 4—4 of FIG. 3; and

FIG. 5 is a view similar to FIG. 3 but showing the device with the loose thread pulled through the fabric.

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Referring now in detail to the drawing, 10 designates a device embodying the invention; 11 designates a piece of fabric, such as a piece of knitted textile cloth; and 12 designates a loose hanging thread which is to be hidden into the fabric by the use of said device.

Device 10 comprises a handle 14 from which extends a needle-like element 15. Handle 14 may be made of plastic, and member 15 may be made of flat spring metal, such as spring steel.

Said member or element 15 comprises a forward tip 16 of bent back or U-shape. The tip 16 may be about $\frac{1}{8}$ " in length with the space between the arms 16a thereof less than $\frac{1}{64}$ ". Arms 16a are interconnected by a front nose 16b, as shown. The flat wire of which the element 15 is made, may be about .022" to .036" in width and about .011" to .015" in thickness. Arms 16a are parallel to one another with the wider flat faces of the wire toward each other.

Extending rearwardly from the rear ends of arms 16a are outwardly inclined or diverging portions 17 about $\frac{3}{16}$ " in length. The rear ends of arms 17 are spaced apart about $\frac{1}{8}$ ". Extending from arms 17 are outwardly and rearwardly curved portions 18 from which extend rearwardly, shank portions 19 of a length of about 1". These shank portions 19 are inclined toward each other and substantially touch at the front end 14a of the handle. These shanks extend into the handle as at 19a about $\frac{1}{2}$ " to 1" and have outwardly extending terminal feet 20. Portions 19a and 20 are embedded in the handle.

Said handle 14 is in alignment with the needle element 15 and preferably has a front converging tip 14a, rearwardly and outwardly tapering body 14c and a curved rear end 14d. Body 14c has flat longitudinal tapering surfaces 14c.

The needle element is rigid or stiff enough to pierce fabric such as knitted cloth, woven cloth, embroidered cloth, hooked rugs and the like fabrics.

As the needle is pushed through the fabric, the opposed pair of portions 17, 18, 19 are pressed together, thereby closing up the eye or opening 30. As the portions 18 emerge from the fabric, the eye or opening 30 again enlarges and the portions 17, 18, 19 on opposite sides of the eye, spread apart. The end of the thread to be woven into the fabric, can then be inserted into the opened eye and pulled into the restricted passage 31 so as to be gripped by the tip 16. It will be noted that the passage 31 may be very small. In fact, the arms 16a may substantially contact one another. As the thread is pulled from the eye 30 up between the arms 16a, said arms will separate apart to form a restricted passage for tightly and resiliently gripping the end of the thread.

In use, the device 10 is held by the handle and the needle element is pushed or pierced through the fabric 11 to thread therethrough. The cloth is bunched up on the needle element so that a considerable width of cloth can be pierced. The tip 16 and arms 17 and part of the shank 19 are pushed past the cloth, to expose the widest part of the opening 30 of the needle, between the curved portions 18. The needle is pierced into the cloth from a position spaced from the base of the loose thread 12 by about the length of the thread and the threading of the needle is toward the base of the loose thread.

The tip or end of the loose thread is then passed through the opening 30 and pulled up into the narrow space 31 in the tip 16, where it is gripped between and by arms 16a of the tip. The handle 14 is then pulled back or retracted and the thread 12 will then be threaded into the fabric and thus will be hidden and will not project or hang out from the fabric. As the thread is fully pulled into the fabric the outer gripped end of the thread will pull off the tip 16 of the device 10.

It will thus be seen that there is provided an apparatus

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in which the several objects of this invention are achieved, and which is well adapted to meet the conditions of practical use.

As possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings, is to be interpreted as illustrative and not in a limiting sense.

I claim:

1. A thread puller comprising a handle and a needle attached thereto, said needle being stiff so as to pierce and be threaded through a textile fabric, said needle being in the form of a loop closed at one end and having its other end secured to said handle, the loop comprising an elongated front tip, the side walls of which define a uniformly restricted passage substantially throughout the length of the tip, sufficiently restricted in the normal, unflexed condition of the needle to securely grip a thread received therein throughout its length, the side walls of the loop at the end of said restricted passage diverging to form an enlarged opening in communication with said restricted passage, whereby a thread can be inserted into the enlarged opening and moved therefrom into said front tip

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to be received in the restricted passage to be gripped therein.

2. The combination of claim 1, said needle being made of a single piece of spring steel wire and said passage being less than $\frac{1}{64}$ " wide in normal, unflexed condition.

3. The combination of claim 2, said wire being flat, with the flat faces of the needle opposed to each other.

4. The combination of claim 1, said handle comprising plastic and the other end of said loop being embedded in said handle.

5. A thread puller as defined in claim 4 wherein the side walls of said loop converge rearwardly of said enlarged opening and are provided with outwardly extending feet embedded within the handle.

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