

Jan. 4, 1944.

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2,338,159

NEEDLE THREADER

Filed March 3, 1941

Fig. 1.

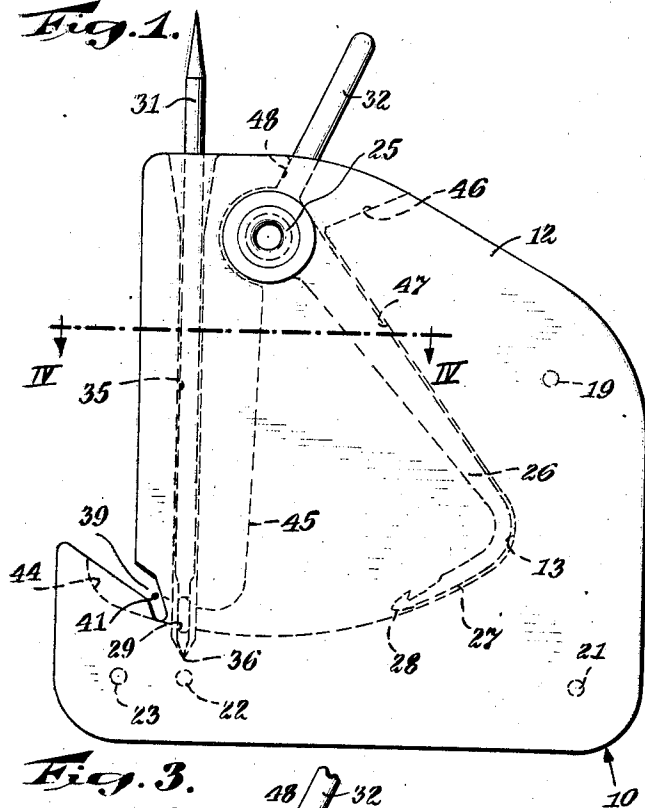


Fig. 2.

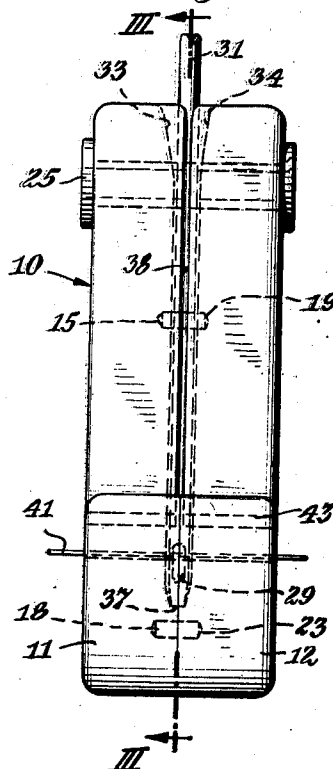


Fig. 3.

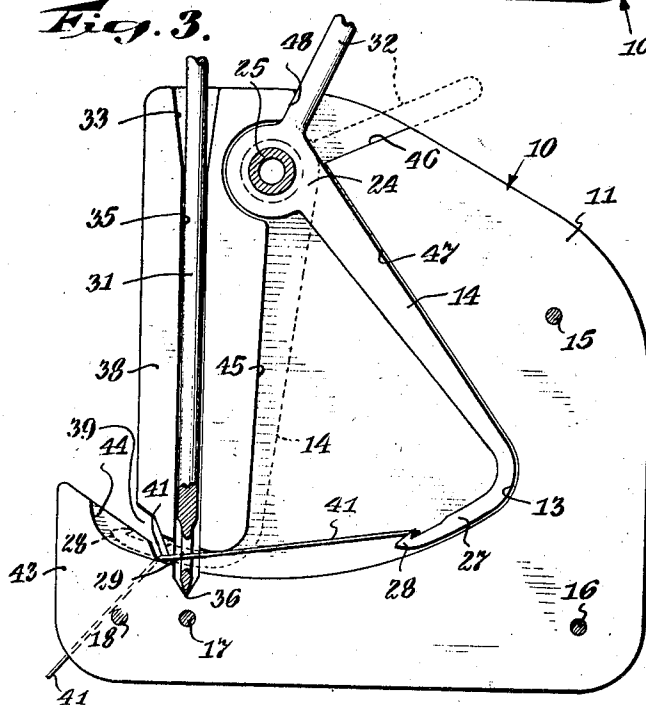
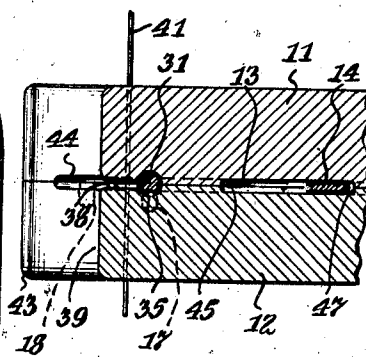


Fig. 4.



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2,338,159

NEEDLE THREADER

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Application March 3, 1941, Serial No. 381,571

5 Claims. (Cl. 223—99)

This invention relates to needle threaders and, more particularly, to such adapted for threading needles of various sizes.

The principal object of my invention, generally considered, is to provide a device for threading a hand sewing needle which will be simpler, cheaper and more certain in operation than those now on the market.

Another object of my invention is to provide a simplified needle threader consisting essentially of a threading element proper, a housing, and means for pivotally mounting said threading element in said housing.

A further object of my invention is to provide a needle threader which is dependable, foolproof in operation, and adapted to accommodate a wide range of needle sizes.

Other objects and advantages of the invention, relating to the particular arrangement and construction of the various parts, will become apparent as the description proceeds.

Referring to the drawing illustrating my invention:

Figure 1 is an enlarged side elevational view of a needle threader embodying my invention.

Figure 2 is an end elevational view, looking at the needle threader from the left as seen in Figure 1, modified.

Figure 3 is a transverse sectional view on the line III—III of Figure 2, in the direction of the arrows.

Figure 4 is a transverse sectional view on the line IV—IV of Figure 1, in the direction of the arrows.

Referring to the drawing in detail, like parts being designated by like reference characters, the body portion, casing, or housing 10 of the needle threader illustrated is composed of two complementary parts, 11 and 12, which together form a recess 13 in which a threading element or hook device 14 moves. The recess may be formed partly in one half, 11, and partly in the other half, 12, of the housing 10, as illustrated, or it may be all formed in one of said parts. The housing 10 is desirably formed of a plastic composition moulded to a desired shape such as illustrated, but it may be made of stamped metal or other suitable material. One of the halves, such as 11, is desirably formed with outstanding dowels 15, 16, 17 and 18 snugly receivable in corresponding recesses or pockets 19, 21, 22 and 23 in the cooperating member 12. In this way the parts are held in proper relation with respect to one another.

The threader or threading element 14 is desir-

ably formed as a spring metal stamping. It is relatively thin and resilient, and comprises a hub 24 through which passes a rivet, eyelet or other pivotal member 25, which performs the additional function of holding the parts 11 and 12 of the housing together. An additional rivet, or rivets may be employed if desired to hold the parts of the housing together. The hub 24 carries a radial arm 26, from the free end of which extends a desirably circumferential or curved portion 27 terminating in a hook 28. The relation between the cavity 13 and the thickness of the threader element 14 is such that it is guided at all times and prevented from moving to any appreciable extent from its prescribed path.

In order to operate the threading element 14 so that it swings from the position indicated in the full lines in Figure 3, to that shown in dotted lines where the hook portion 28 passes through the eye 29 of a needle 31, there is in the present embodiment an operating arm 32 which extends from the hub 24 beyond the boundary of the housing 10, so that it may be moved by a finger of the operator.

In order to hold a needle 31 in place, the housing portions 11 and 12 are provided with cooperating grooves 33 and 34 which together provide a generally cylindrical pocket or well 35 for the reception of said needle. The needle well extends from the top of the casing 10 as viewed in the figures, to below the cavity 13, so that the eye 29 is normally positioned on the circumference which is traversed by the hook 28 when the threading element is moved to the dotted position, as viewed in Figure 3. The lower end of said well 35 is formed so that when the needle 31 is dropped in place, to the position illustrated, it turns if necessary so that its eye is in position to receive the hook 28. That is, the lower terminal of the needle well is generally pointed in vertical section, as indicated at 36 in Figure 1, as viewed from the side, while truncated in vertical section as viewed from the end of the housing, as indicated by the reference character 37 in Figure 2. Intermediate horizontal sections are, therefore, generally oval or elongated.

The portions of the housing beyond the needle well 35; that is at the other side of said well from the rivet 25 and threader cavity 13, are spaced as indicated to provide a thread release slot 38. The peripheral contour about said slotted portion is as seen at the left of Figures 1 and 3; that is, there is a notch 39 for the reception of the thread 41, shown in place in section, said notch being defined by an underlying projection 43 extending

beyond the spaced portions providing for the thread release.

The needle threader cavity 13 is extended into the projection 43, as indicated at 44, to receive the hook portion 28 when the threader 14 is projected through the eye 29 of the needle 31. The function of this construction is to insure that the threader hook 28 is housed at all times, and so avoid any possibility that it may become accidentally damaged in use. The notch 39 extends below the path of movement of the hook portion 28 so that when the thread is drawn toward the extreme root of the notch, the hook upon its return movement will engage the thread and draw it through the eye of the seated needle 31.

The threader recess 13 desirably terminates in a shoulder 45 against which the radial arm 26 abuts at the limit of its outward movement, and a shoulder 46 against which the operating arm 32 abuts at this point. The recess shoulders 47 and 48 likewise serve as abutments for the arms 26 and 32, respectively, at the limit of their inward movement.

The threader disclosed may be operated as follows:—The device is held between the thumb and second finger of one hand, with the index finger on the arm 32 with the needle well 35 in a vertical or approximately vertical position. If the threader element 14 is not in the position shown in full lines in Figure 3, the index finger is moved forward toward the needle well, moving the arm 26 and hook portion 28 rearwardly to that position.

The needle 31 is then dropped eye down into the needle well 35. The shape of the seat 36—37, and the fact that it is of proper depth so that the eye lies on the path of movement of the hook 28, causes the needle to come to rest in the position illustrated.

The index finger then moves the arm 32 away from the needle well and thus causes the hook 28 to pass through the eye 29 of the needle 31, to the position shown in dotted lines in Figure 3.

The thread, shown in cross section at 41, is now drawn across and down towards the bottom of the thread channel or notch 39, which brings it into position to be caught by the hook 28 upon its return movement to the full line position shown in Figure 3, where it draws a loop of thread through the eye 29.

The needle may now be withdrawn from the needle well with a double thread through its eye. In order to be sure to release the thread from the hook 28, the latter is caused to move partly toward the needle well, and the needle may then be withdrawn without difficulty from its well, the thread passing through the thread escape slot.

From the foregoing description it will be seen that I have devised a needle threader which is simple in construction, efficient in operation, and durable in that there is no danger of unintentional damage to the delicate threading element. On account of the preferred manner of formation of the threading or hooked element, the same is adapted to bend slightly in the plane in which it lies and so accommodate itself to needles of different sizes and eye positions, that it will pass through the eyes of a greater variety and number of sizes of needles than most other needle threaders.

On the other hand, on account of being confined closely in the receiving cavity, there is little danger that it will be bent out of shape. Should the hook become caught on a thread, any

yank or pull will be transferred to the hook only as a straight tension in the direction of the length of the hook, and on account of the high tensile strength of the metal forming the hook, no harm can be done. As the hook is protected against a sidewise pull beyond the clearance limits of its cavity, it cannot be bent sidewise or out of the plane in which it normally lies.

Although a preferred embodiment of my invention has been disclosed, it will be understood that modifications may be made within the spirit and scope of the appended claims. It will also be understood, that although the dowel pins, 15, 16, 17 and 18, are preferably integral with one half of the housing 10, such as 11, for example, and snugly received in the pockets 19, 21, 22 and 23 of the other, as shown in Figures 1 and 4, of the halves 11 and 12, yet they may, if desired, be formed separate and snugly fit both halves for the same purpose, as shown in Figure 2.

I claim:

1. A needle threader comprising a two-part housing, an oscillating threading element comprising a resilient stamping with a hook extending as an integral continuation directly from a radial arm thereof and a hub, pivot means intersecting and holding the hub portion and parts of said housing together, said hook being generally circumferential with respect to said pivot means and said housing being formed with a well adapted to hold a needle with its eye in line for reception of said hook.

2. In combination, a two-part body portion, a needle threader device having arms projecting directly from a hub thereof, a hook extending circumferentially from the end of one arm, the other arm of said device extending beyond said body portion to be operatively engaged by a person's finger, and means intersecting said hub and body portion for holding the parts of the latter together and pivoting the former thereto, said body portion having a well for receiving a needle for longitudinal and axial movements only until its eye lies in the path of said hook, and an edge notched to receive a thread to be engaged by said hook for drawing it through the eye of said needle.

3. A needle threader comprising a two-part body portion providing a pair of recesses, one of said recesses forming a needle well, a threading element, means pivoting said element to and simultaneously holding the parts of said body portion together, so that said element is housed by said body portion and swingable to a limited extent in said other recess, the parts of said body portion, defining radial edges of said other recess, forming stops for limiting swinging of said element, said element comprising a hub portion, operating means extending from one side of said hub portion to beyond said housing, and a radial portion extending from another side of said hub portion and terminating in a portion integral therewith and circumferential with respect to said hub portion, the free end of said circumferential portion being formed as a hook and positioned so that, as it swings about the axis of pivoting, it will pass through the eye of a needle when positioned in said well.

4. A needle threader comprising a two-part body portion with a needle recess, a hook device closely housed and swingable in another recess in said body portion, said device comprising a hub portion, a radial portion extending from said hub portion, and a circumferential portion terminating in a hook extending as a continuation

from the free end of said radial portion, a rivet performing the double function of holding the parts of the body portion together and passing through said hub portion to pivot the hook device to said body portion, and means integral with, projecting from a side of the hub portion different from that from which said radial portion extends, and operable from outside of said body portion, so that the hook device is swingable into the eye of a needle when disposed in the recess.

5. A needle threader comprising a housing formed as two complementary parts which together define a needle well and a recess, a threading element swingable in said recess and comprising a hub portion housed closely in a portion of said recess, a member passing through the hub portion and said complementary parts, and performing the double function of a pivot for the threading element and means holding

the housing parts in assembled relation about said element, said threading element also including an arm projecting radially from said hub portion beyond the near edge of said housing and engageable by the finger of an operator for moving said threading element about its axis of pivoting, another radial arm, extending from said hub portion and having a circumferential continuation at its end, the free end of said continuation being formed as a hook positioned so that as the threading element swings about the pivot the hook will pass through the eye of a needle when positioned in said well, the recess flaring from the hub-receiving portion to allow the threading element to swing, while providing stops at the ends of the desired path of travel, and being of such depth that it closely confines said element and protects it from undesired bending.

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