

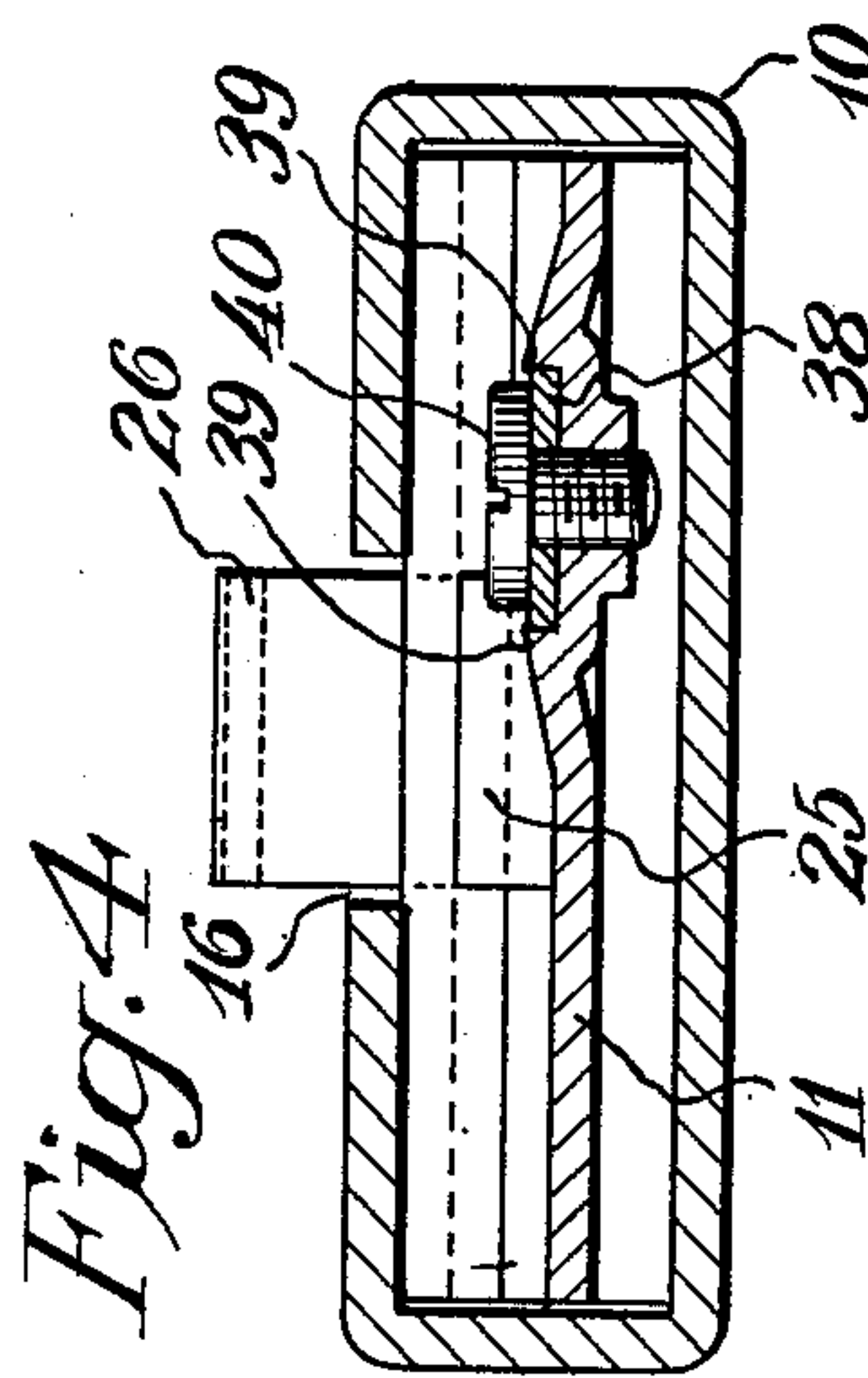
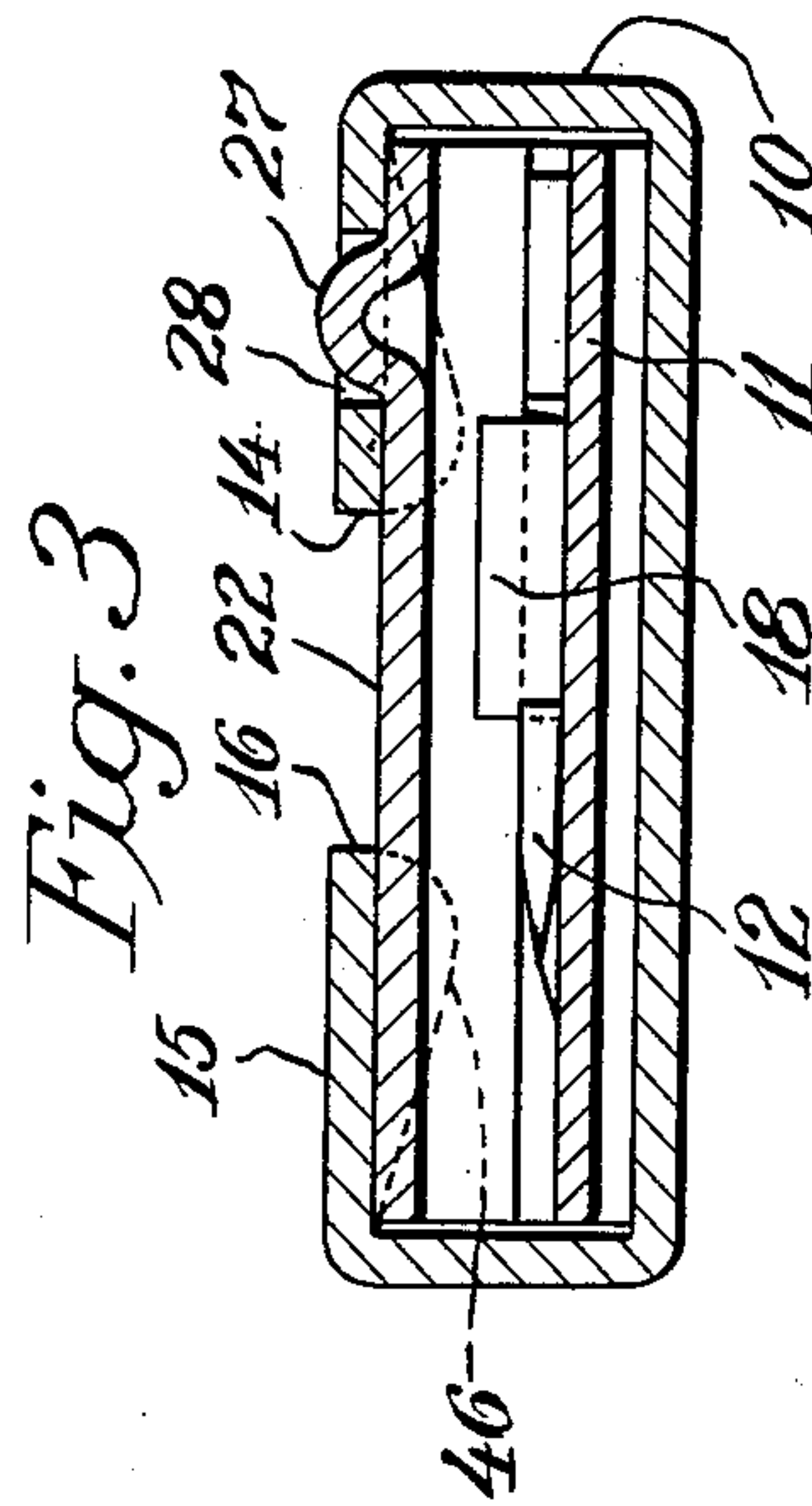
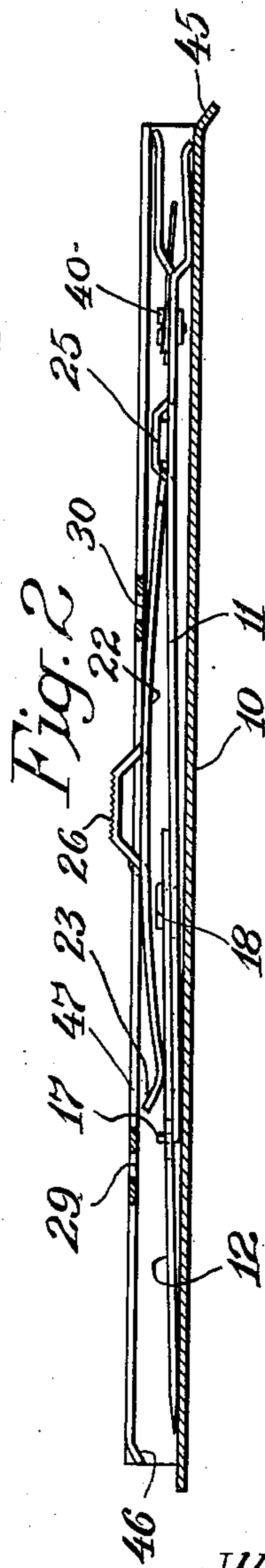
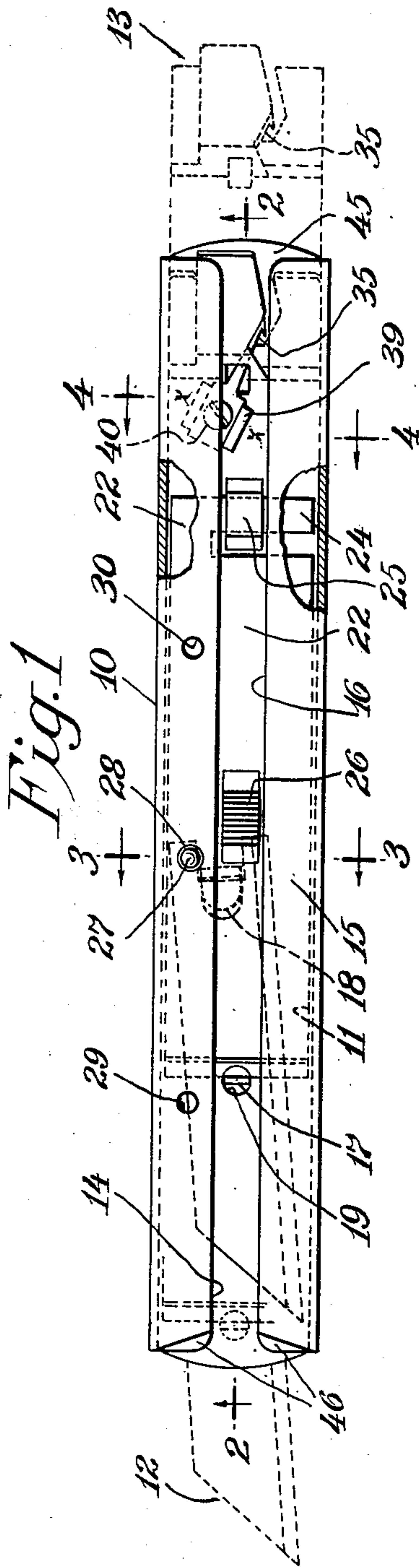
April 10, 1951

M. INGWER ET AL  
SEAM RIPPING KNIFE

2,548,797

Filed Nov. 20, 1946

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

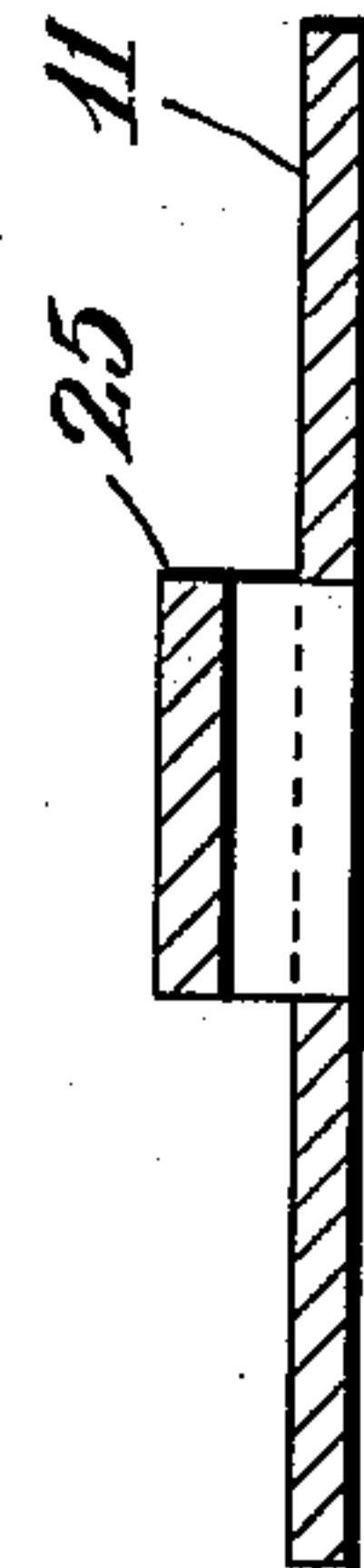
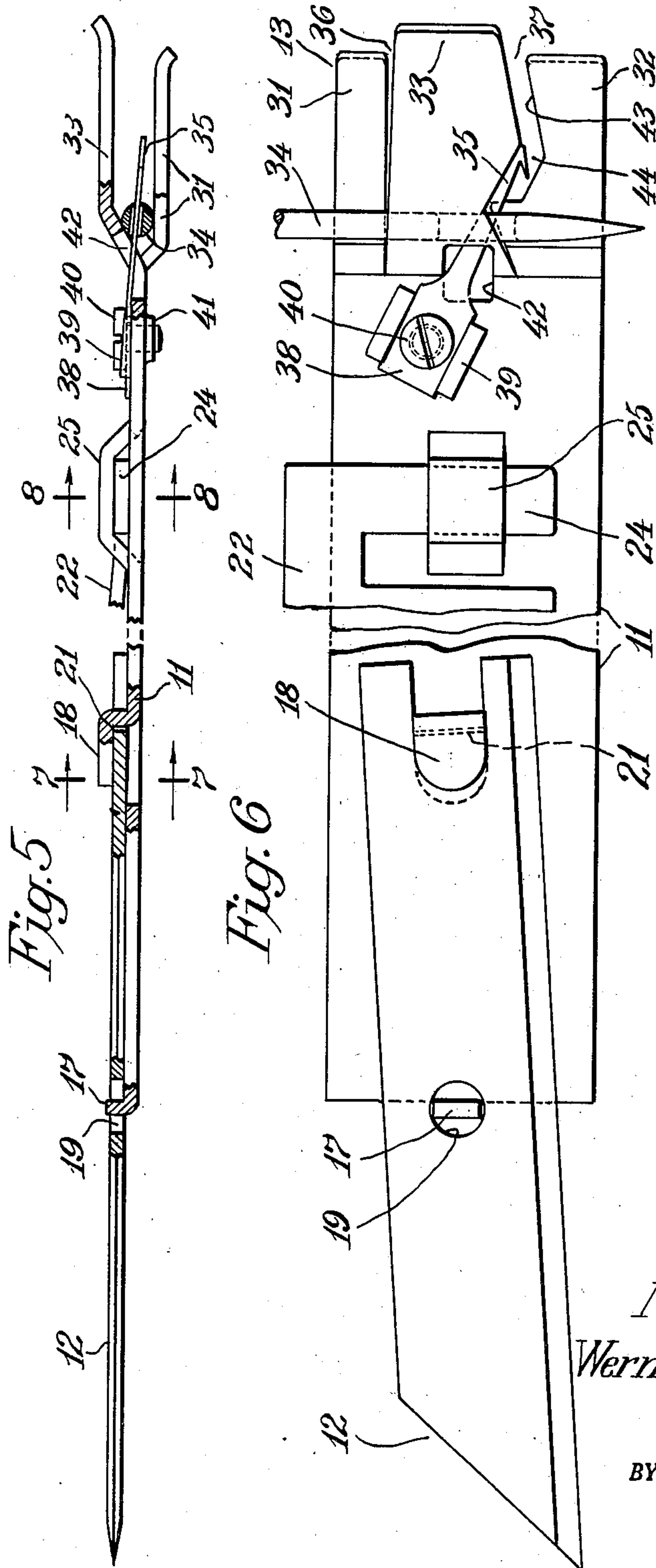


Fig. 8

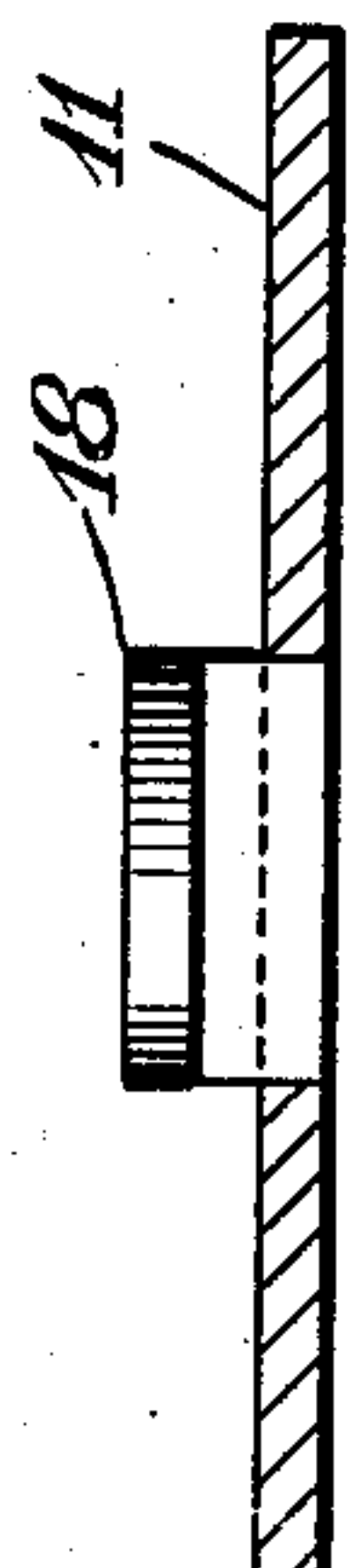


Fig. 9

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## UNITED STATES PATENT OFFICE

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## SEAM RIPPING KNIFE

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1 Claim. (Cl. 30—162)

1

The invention here disclosed is a combination tool designed to serve, as required, as a needle threader and as a seam ripper.

Particular objects of the invention are to provide a tool of the character indicated which will be of small size, after the nature of a pocket knife, convenient for carrying and handling, consist of but few parts, be relatively inexpensive and be efficient, practical and safe in use.

Further special objects are to provide a device of the character indicated which will be neat and attractive in appearance and in which the operating parts will be fully enclosed and protected when not in actual use.

Other, more specific objects and the novel features through which all purposes of the invention are attained are set forth or will appear in the course of the following specification.

The drawings accompanying and forming part of the specification illustrate a present preferred embodiment of the invention. The structure, however, may be modified and changed in various ways as regards this illustration, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawings is a face view of the tool with portions broken away and appearing in section and with dotted lines indicating how the blade and hook carrying slide can be shifted in the sheath or handle to expose such parts for use;

Fig. 2 is a longitudinal sectional view as taken on substantially the plane of line 2—2 of Fig. 1;

Figs. 3 and 4 are enlarged cross sectional views as on substantially the planes of lines 3—3 and 4—4 of Fig. 1;

Fig. 5 is a broken and part sectional edge view of the blade and hook carrying slide and showing the needle threading hook as passed through the eye of a needle;

Fig. 6 is a broken face view of the slide and showing the threading hook as extended through a needle;

Figs. 7 and 8 are cross sectional details on substantially the planes of lines 7—7 and 8—8 of Fig. 5.

The embodiment of the invention illustrated comprises a hollow, open-ended handle 10, in which operates a slide 11 carrying at one end a seam ripping knife blade 12 and at the opposite end a needle threader 13.

The handle is shown as a channel form sheath of sheet metal, plastic or other suitable material, having opposed edge flanges 14, 15, partially closing the channel but leaving between them a longitudinal slot 16 opening out through both ends of the sheath.

The slide is shown as a flat blade or strip of a width to operate freely in the channel and of

2

a length somewhat less than the length of such channel.

At one end the slide 11 is shown as having an up-turned lug 17 and inwardly of that, an up-struck, offset lug 18, the first to cooperate with a hole 19 in the ripper blade 12 and the second to interlock with and overlap the inner end portion 21 of such blade.

This construction enables a blade to be readily mounted on the slide by simply interlocking the inner end portion 21 of the blade with the inner lug 18 and engaging the holed portion of the blade over the lug 17. Conversely, a blade can be quickly removed from the slide by lifting it slightly to clear the perforated portion of the blade from the end lug and then withdrawing the blade longitudinally from engagement with the inner lug 18 on the slide.

A special spring retainer and handle member holds the blade engaged with the positioning and securing lugs 17, 18, and serves for operating the slide in opposite directions.

This spring retainer is shown as an arched length 22 of flat spring strip bearing at one end, at 23, on that portion of the blade between the retainer lugs 17, 18, Fig. 2, and bearing at the opposite end directly on the slide, it having at the latter end a hook portion 24 extending through the loop 25, struck up from the body of the slide.

At its central portion the arched spring 22 is shown as having a struck-up knurled arch 26 forming a thumb button operable in the slot 16.

The spring retainer and operating handle 22 is further shown as having an embossment 27 at one side and at or near the highest arched portion of the same, for engagement in slide positioning openings 28, 29 and 30 in the overstanding edge flange 14 of the sheath.

The needle threader is made up, in the illustration, of prongs 31, 32, at the upper and lower edges and offset to one side of the flat plane of the slide, and an intermediate, longer prong 33 offset to the opposite side of such plane, to provide a vertically disposed channel to receive the needle 34, as in Figs. 5 and 6, and a thread engaging hook 35 extending into such channel.

The needle guiding or embracing prongs 31, 32 and 33, may be provided by slitting the end of the slide inwardly, as indicated at 36 and 37, Fig. 6, and then bending the prongs to offset them in opposite directions, as described.

The thread hook 35 is shown as made of thin, flat sheet metal having a base portion 38 centered between parallel lugs 39 struck up from the body of the slide and held by a screw 40 threaded into the body of the slide at 41, Fig. 5, between such lugs.

These parts firmly hold the hook in a downwardly inclined position with the shank portion



3

of the same projecting through an opening 42 in the offset base portion of the center prong.

The upper edge of the lower prong and the opposing lower edge of the intermediate prong are shown inclined downwardly in substantial parallelism and spaced to form a relatively narrow, downwardly inclined entrance groove or channel 43 for the thread.

The downwardly inclined hook 35 is located at the back or at the inner end of the narrow entrance channel 43 and is disposed in the upper portion of a wider and upwardly inclined channel 44 forming an inner and upward extension of channel 43. The downward inclination of the hook substantially corresponds to the upward inclination of the wider hook and thread receiving channel 44.

The threader is used by simply slipping the guide end of the blade over the needle, as in Fig. 6, with a slight downward movement to carry the point of the hook through the eye in the centered needle. The extended end of the longer, middle prong 33 assists in "finding" and engaging the threader over the needle, and this longer end also assists in placing the thread in the narrow entrance channel 43 and which may be effected by lifting the thread up into engagement with the lower edge of the longer, middle prong and then slipping the thread inwardly and downwardly through this narrow channel into the wider slot below and in back of the hook where, with a slight lifting action, the thread will be caught in the barb of the hook. Then upon drawing the threader away from the needle the thread will be drawn through the eye of the needle.

The downwardly inclined narrow entrance slot leads the thread back into the wider, upwardly inclined channel in back of the needle hook to a point where a slight upward lift will positively catch the thread to the hook, and this operation can be performed without further attention than simply sliding the thread inwardly and then upwardly in the guide channels. The lower edge of the upwardly inclined wider channel portion keeps the thread from dropping away from engagement with the hook. The particular combination described provides an efficient and substantially automatic needle threader.

In the intermediate or centered position of the slide shown in full lines in Fig. 1, with the detent lug 27 in engagement with opening 23, the blade and the threader are both fully housed within the sheath and maintained so by the spring detent. The device in this condition can be freely handled and safely carried in a pocket or the like. By depressing thumb-piece 26 and forcing the slide to the left, the ripper blade will be projected, as shown in the dotted lines, and may be secured in this relation by permitting the detent member 27 to interlock with the left-hand opening or seat 29. By operating the slide to the right, the needle threader will be projected, as shown by the dotted lines at the right in Fig. 1, and be held in that position by engagement of detent element 27 with opening 30.

If desired, the slide may be entirely removed from the sheath by unlocking detent 27 from the locking opening 30 and then sliding the holder member entirely out of the channel in the handle. Upon such removal the arched spring may

4

be unhooked from the holder slide to uncover and fully release the blade, which may then be slipped out of engagement with its retaining lugs for replacement by a fresh blade.

The act of slipping the holder back into the handle has the effect of securing the thumb spring in position on the holder. An extended inclined lip 45 on the bottom of the channel, at the right-hand end of the handle, facilitates the insertion of the holder back into the handle.

To prevent the blade holder being pushed too far to the left, Figs. 1 and 2, the end corners of the flanges 14, 15, are shown turned downward at 46 to act as stops when engaged by the upturned end portion 47 of the spring 22.

The device can be inexpensively produced. The parts are few and are compactly combined so as to take up but small space; the channel shaped sheath provides ample strength in a conveniently small, light weight form. When retracted, both the threader and the ripper are enclosed and fully protected. This is important as providing safety against cutting or injury from the ripper blade and as protecting the prongs of the threader against bending or other injury. In its projected position at the end of the sheath, the threader forms a very effective tool for quickly and easily accomplishing the threading of a needle. The ripper blade may be set on a downward slant, as indicated in Figs. 1 and 6, this being effected by the positioning of the blade retaining lugs 17 and 18 on the holder slide.

What is claimed is:

A tool of the character disclosed comprising a handle in the form of a channel open at opposite ends and having inturned flanges along opposite edges of the same with a slot between the opposing edges of said flanges, a plate longitudinally slidable in said handle beneath said flanges, a ripper blade fixed on said plate and extensible in the movement of said plate through one open end of the channel, a bowed spring engaged in the handle beneath said flanges, said spring bearing at opposite ends on said slidable plate and with its central bowed portion bearing against said inturned flanges, said bowed spring being connected at one end with said plate for effecting longitudinal shifting of the plate and having an intermediate button-forming extension projecting up through the slot between the flanges, and said spring and one of the flanges having companion stop elements engageable to releasably retain said bowed spring and the slide operated thereby in predetermined selected positions in the handle.

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WERNER W. SCHWARTZ.

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