No. 620,540. Patented Feb. 28, 1899.

J. DARLING.

NEEDLE THREADER.

(Application filed Apr. 6, 1898.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

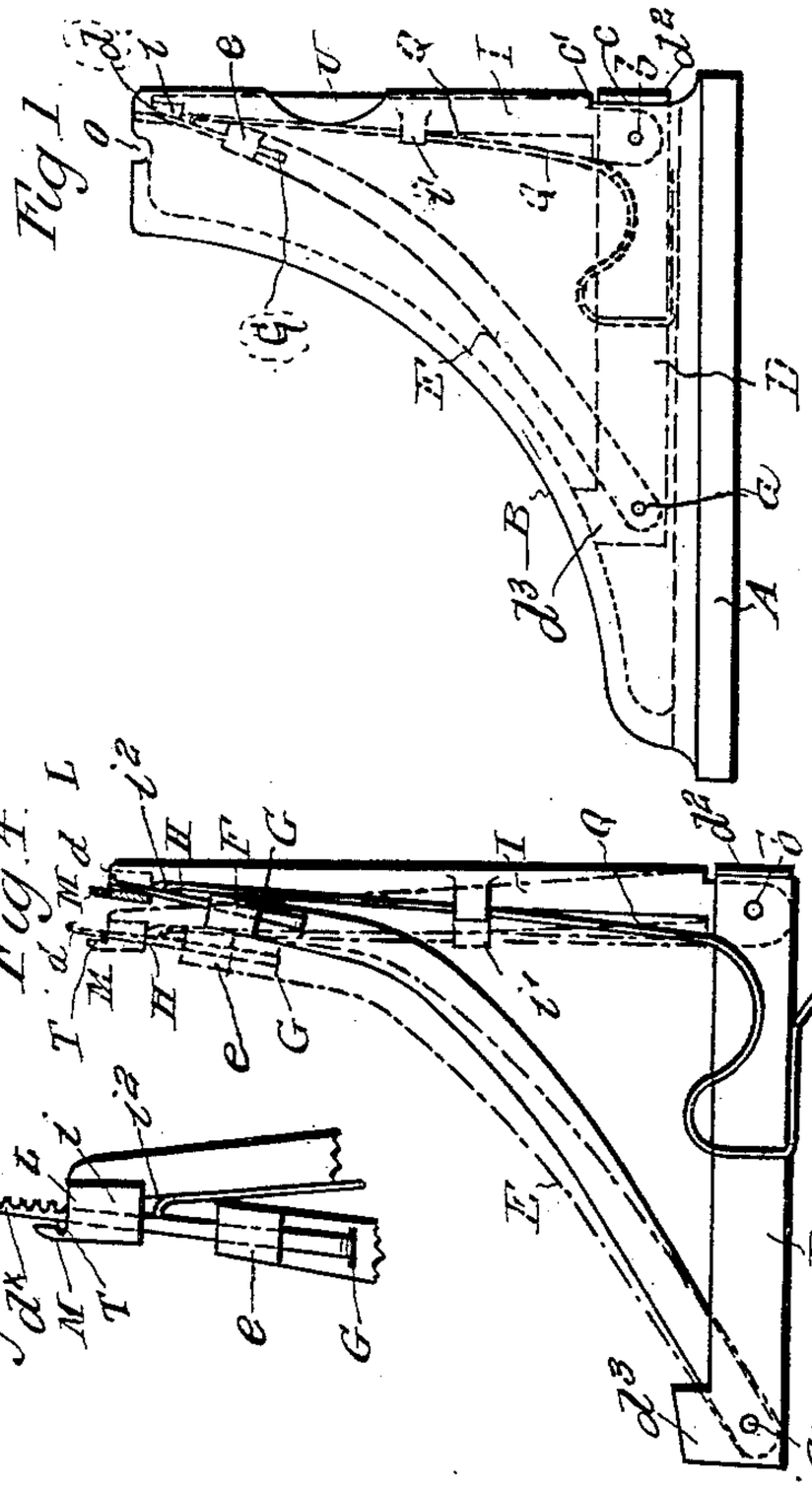


Fig. 2.

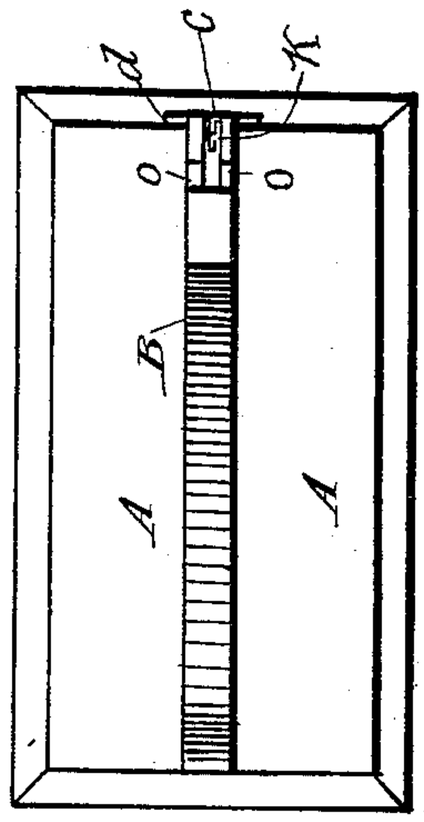


Fig. 4.

Fig. 3.

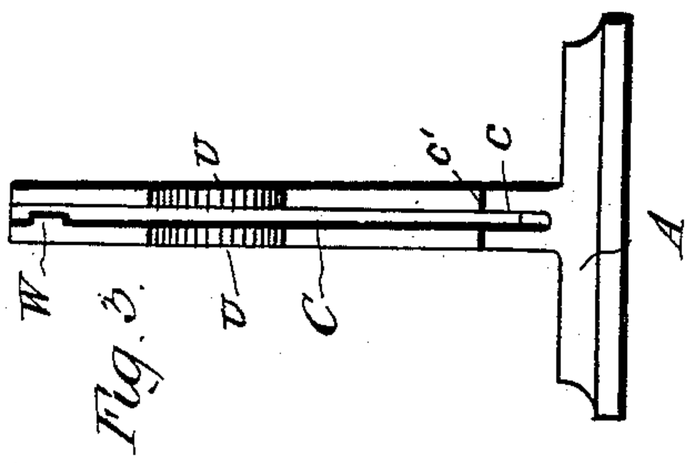


Fig. 7.

Fig. 5.

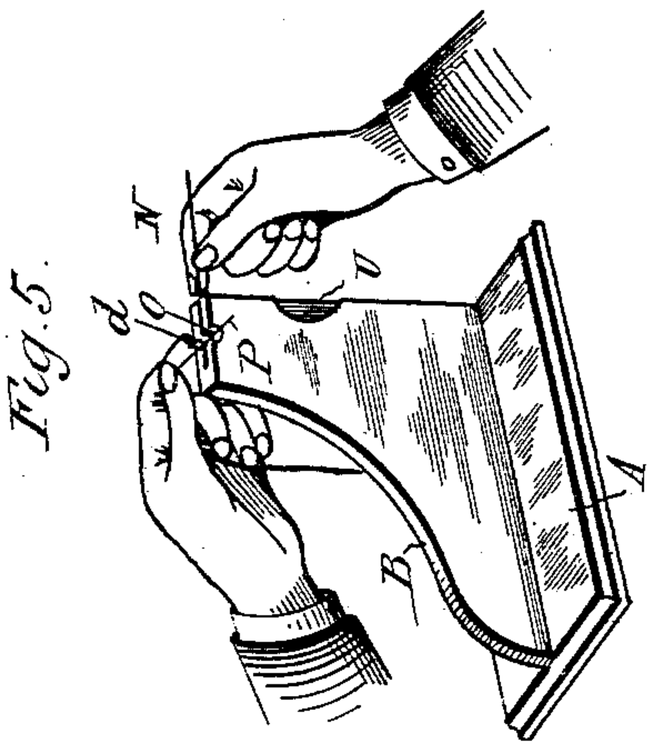
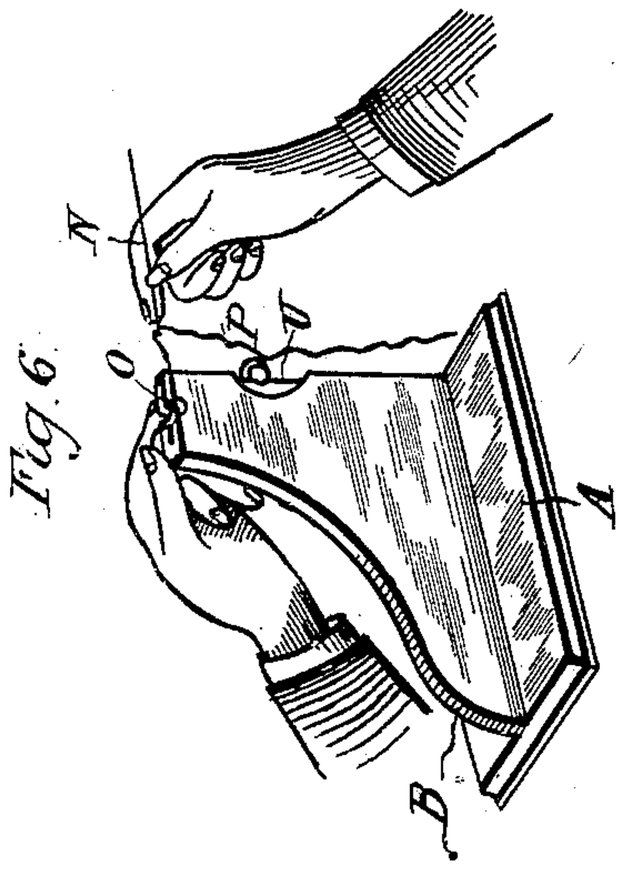


Fig. 6.



Witnesses.

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No. 620,540. Patented Feb. 28, 1899.

J. DARLING.

NEEDLE THREADER.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 7a.

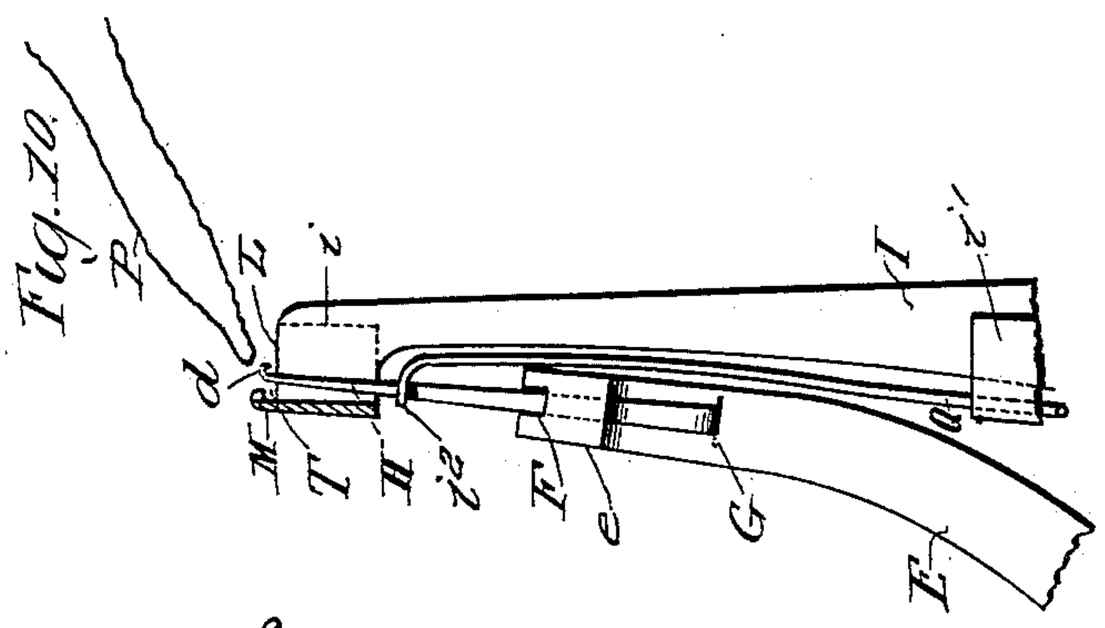


Fig. 9.

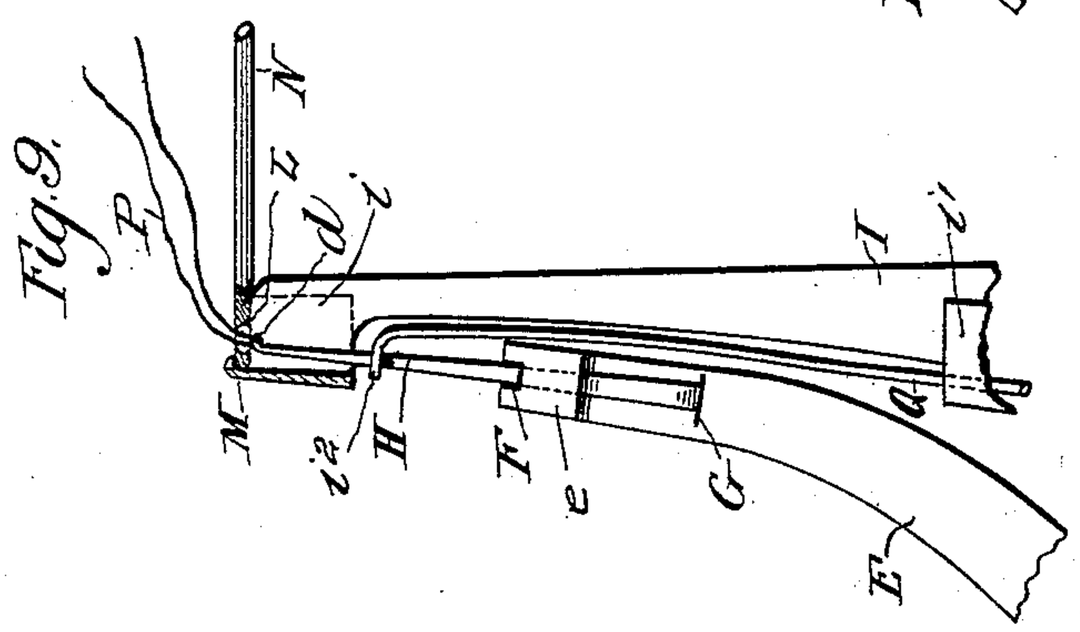
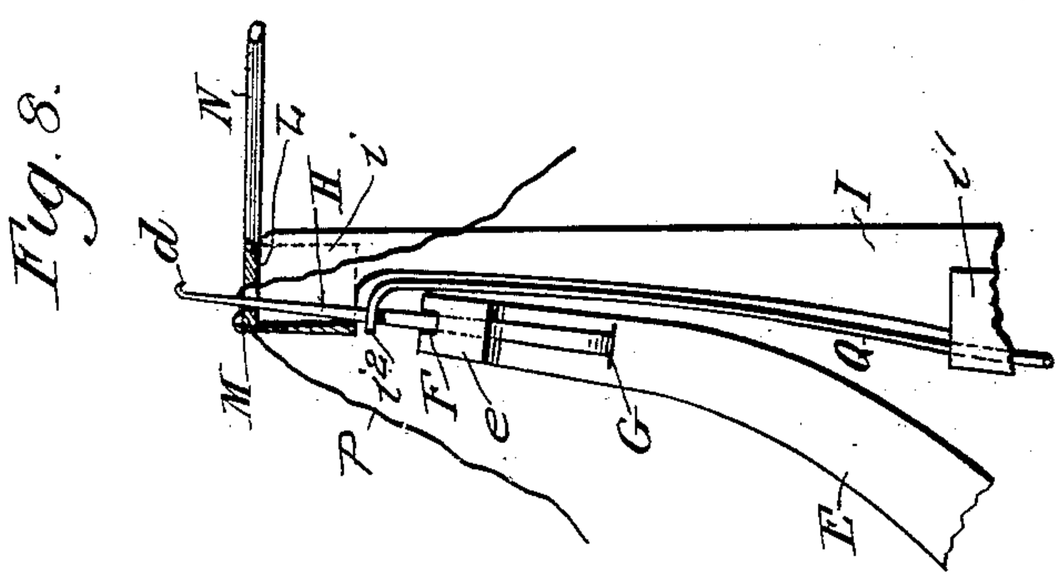


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOHN DARLING, OF LONDON, ENGLAND, ASSIGNOR TO THE GEM NEEDLE THREADER COMPANY, LIMITED, OF GLASGOW, SCOTLAND.

NEEDLE-THREADER.

SPECIFICATION forming part of Letters Patent No. 620,540, dated February 28, 1899.

Application filed April 6, 1898. Serial No. 676,700. (No model.)

To all whom it may concern:

Be it known that I, JOHN DARLING, engineer, a subject of the Queen of Great Britain and Ireland, and a resident of No. 2 Wharton street, King's Cross Road, London, England, have invented certain new and useful Improvements in Needle-Threaders, of which the following is a specification.

My invention has for its object an improved appliance for the purpose of facilitating the threading of needles.

My improvements consist in novel features of construction, as hereinafter described and claimed.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved needle-threader. Fig. 2 is a top plan view thereof. Fig. 3 is a front elevation of the stand for the threading mechanism. Fig. 4 is a side elevation of the threading mechanism. Fig. 5 is a perspective view of the needle-threader, showing the operation of threading a needle. Fig. 6 is a similar view after the threading of the needle has been accomplished. Fig. 7 is a detail side elevation of a modified form of threading device. Fig. 8 is a detail vertical section of the needle-threader, showing the first part of the operation, the hook being pushed through the eye of a needle and a thread placed across the slit. Fig. 9 is a similar view showing the second part of the operation, the hook being withdrawn through the eye of the needle and taking the thread with it, thus threading the needle. Fig. 10 is another view showing the third part of the operation, the remaining thread being released by the elevation of the hook after the needle, with its thread, has been separated from the remaining thread.

In carrying out my invention I employ a loaded or weighted base-plate A, which acts as a support or rest for the appliance while under the threading operation. Mounted upon this base-plate, or, as shown in the drawings, cast in one piece with it, there is an upright plate or standard B, having a vertical channel or slit C in the center, (shown most clearly in Fig. 3,) into which the working mechanism is placed. The upright plate or standard is also formed with a lower recess *c*, providing shoulders *c'*, and with a top recess or cut-out O, extending across the channel or slit. The threading mechanism or working parts of the threader are insertible bodily in and removable from the said channel or opening C, and comprises an approximately triangular arrangement of levers or arms.

D is a horizontally-arranged lower lever or arm formed of a strip of metal having a bent and folded outer end providing a head d^2, seated in the lower recess *c* between the shoulders *c'* and the base-plate A, and a projection d^3 at its inner end fitting against the inclined portion of the inner wall of the channel or slit. E is an obliquely-arranged inner lever or arm formed also of a strip of metal and pivoted to the inner end of the lower lever by means of a rivet-pin *a*. The upper end of this inner lever is formed with a folded lip *e*, having an eyelet F, and with a transverse slit G for the purpose of retaining a needle-threading device H in position and also enabling said device to be removed and another one or one of a different size substituted therefor at any time without trouble. The upper end of the needle-threading device may have a hooked end *d* or it may be in the form of saw-cuts providing a serrated end $d^\times$, as shown in Fig. 7. The needle-threading device is secured removably by passing its lower portion through the eyelet F and through the slit G and then folding its inner extremity against the arm E.

I is the upright outer lever or arm, pivoted by a rivet-pin *b* to the outer end of the lower lever or arm D and formed at its upper end with a folded lip *i*, providing a vertical channel K. The top of the lip portion is cut away, providing a horizontal recess L and a stop or projection M, having a small transverse recess T acting as a guide to the needle N to be threaded. The tip or end of the thread P is placed with the view of holding the thread against the hooked end *d* of the threading device H during the threading operation, or in lieu of the cut-out or recess O a little upward projection or pins might be used which would effect the same object.

Q is a spring having its body portion passed

through an eyelet i', formed on the inner edge of the upright lever I. The extremity i^2 of the upper end of the spring is forked, bears against and straddles the threading device, and thus supports the upper end of the inner lever E, which projects the threading device, the upper portion of the spring also bearing against the upright lever I. The lower portion of the spring rests upon the floor of the channel C. The spring causes the upright lever I and the inner lever E to return to their normal position after the threading operation has been performed, as will be hereinafter described. A little stop W is provided on the upright plate B, which extends across the channel C, and thus retains the upright bar or lever in its normal position.

The threading mechanism is operated in the following manner: The eye end of the needle N is placed in the horizontal recess L until the end of it rests in the transverse recess T in the stop M at the back. It is then pushed forward against the stop M, which action causes the outer lever I to go forward, thus raising the inner lever E, to which the threading device is attached, and the hooked end d passes up through the vertical channel K and thence through the eye of the needle N. The tip end p of the thread P, which is preferably thinned or tapered, is then placed across the cut-out or recess O in front of the hooked end d, which has been passed through the needle-eye, and when the needle has been drawn forward the thread being held against the cut-out O is automatically drawn under or against the hooked end d, when the needle becomes threaded. To release the end of the thread after this operation, a projecting piece of metal is fixed to the upper end of the outer lever, and this is simply pressed forward when the end is released, or the recess U in the standard B serves the same purpose. In such case the outer lever I is simply pushed back and the thread pulled down, when it becomes released from the threading mechanism.

The appliance may be so arranged as to hold or contain two or more threaders of different sizes.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A needle-threader comprising a baseplate, an upright plate, or standard, having a vertical channel, or slit, and a top recess extending across the channel, or slit, and a threading mechanism fitting in the channel, or slit, and consisting of a lower lever, an inner lever, an outer lever, and the threading device having a hooked upper end and secured to the inner lever: substantially as described.

2. A needle-threader comprising a baseplate, an upright plate, or standard, having a vertical channel, or slit, and a threading mechanism, consisting of a lower lever, an inner lever, an outer lever, the threading device having a hooked upper end and secured to the inner lever, and the spring secured to the outer lever, bearing on the floor of the channel, or slit, and having a forked upper end bearing against and guiding the threading device in its movement; substantially as described.

In testimony whereof I hereunto affix my signature in presence of two witnesses.

JOHN DARLING.

Witnesses:

JOHN LIDDLE,

EDITH MARY EDMONSTONE.