

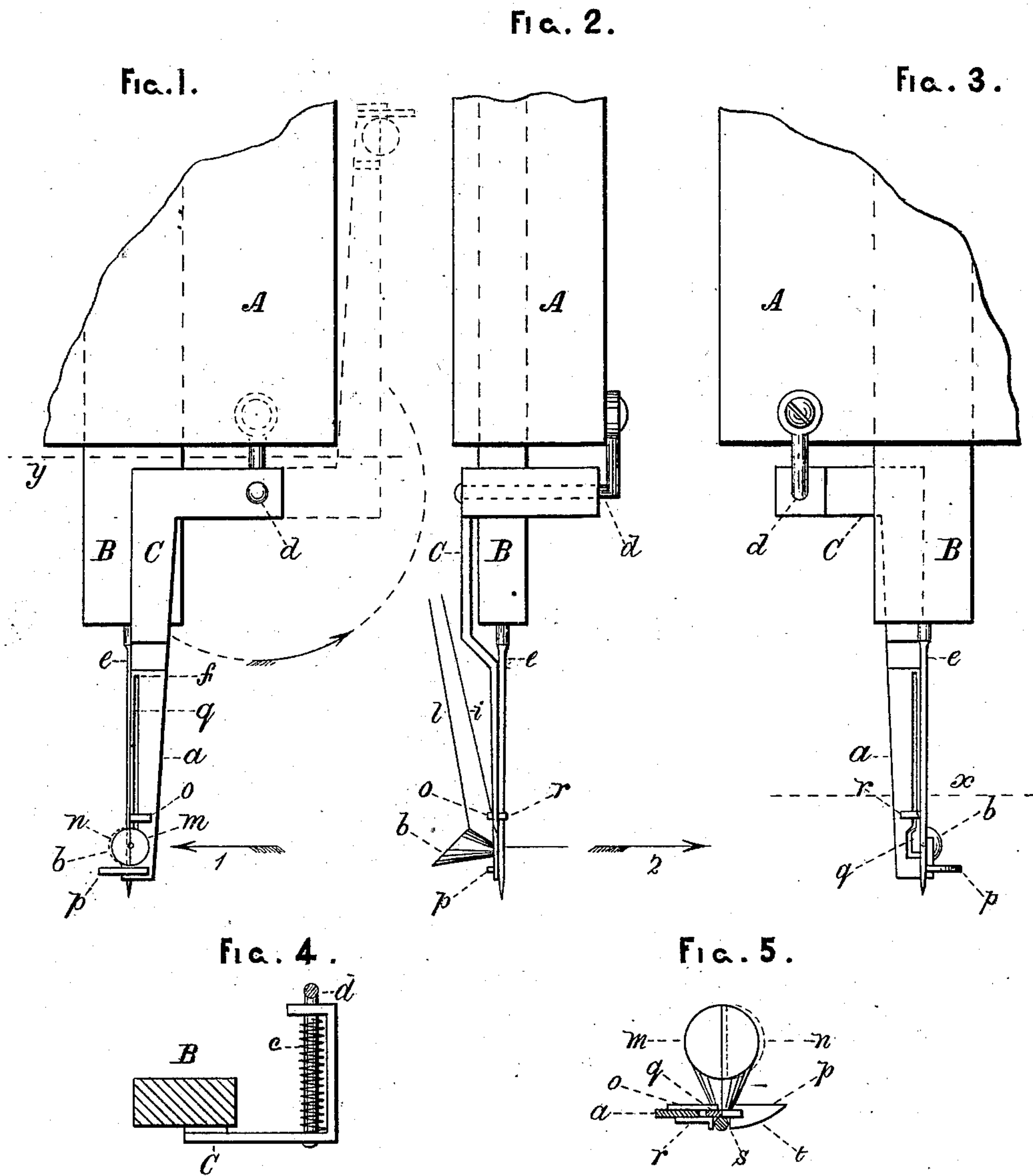
(Model.)

E. N. McPHERRON.

NEEDLE THREADER FOR SEWING MACHINES.

No. 294,061.

Patented Feb. 26, 1884.



WITNESSES.

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EDWIN N. McPHERRON, OF GREENFIELD, ILLINOIS.

NEEDLE-THREADER FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 294,061, dated February 26, 1884.

Application filed June 21, 1883. (Model.)

To all whom it may concern:

Be it known that I, EDWIN N. McPHERRON, of Greenfield, in the county of Greene and State of Illinois, have invented a new and Improved Needle-Threader for Sewing-Machines; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to an improvement in needle-threaders for sewing-machines, the object of the same being to provide a threader that shall be free from all liability to cut the thread or in any way damage it as it passes out of the guide, and that shall, when the needle is threaded, automatically turn up and out of the way of the operator.

A further object of my invention is to adapt the arm of the threader to carry both the fixed and free half of the thread-guide in such manner as not only to cheapen the construction, but at the same time render the instrument more compact than heretofore.

A still further object of my invention is to give to the large orifice of the thread-guide such an inclination relative to its axis as to render the insertion of the thread easier than heretofore.

These improvements I accomplish by certain details of construction and combinations of parts fully explained hereinafter.

In the accompanying drawings, Figure 1 is a front elevation of the device. Fig. 2 is a side elevation. Fig. 3 is a rear elevation, all three figures showing a portion of the head or guide in which the needle-bar slides. Fig. 4 is a sectional plan view taken in the line *y*. Fig. 5 is an enlarged sectional plan view taken in the line *x*, Fig. 3.

In the first three figures, A represents a portion of the sewing-machine head or guide in which the needle-bar slides.

B represents the needle-bar, and C the arm of the threader, supported upon a horizontal axis, *d*, which is secured to the lower rear part of the head A in such position as to allow the arm C to swing round through half a revolution into the position shown in dotted lines, Fig. 1. Said arm is preferably made of thin sheet-brass cut and bent so that its lower part shall hang parallel with and close to the needle *e*, as shown in

Fig. 2, the upper part being bent, as shown in Fig. 4, and provided with holes or bearings for the reception of the axis *d*, upon which the threader is suspended. Between the two bearings just alluded to, and wound around the axis *d*, is a spiral spring, *c*, one end of which is secured to the axis and the other to the arm, as shown in Fig. 4.

To the lower part of the arm C, as shown in Fig. 2, is secured a funnel-shaped thread-guide, *b*, the small orifice of which coincides with the eye of the needle, said guide being split vertically in the line of its axis, and in this detail not differing from other guides of its class. The large orifice is, however, cut obliquely to the axis, as shown in Fig. 2, in order to facilitate the introduction of the thread, which is usually presented to the inlet of the guide with a downward, rather than a horizontal, motion of the hand, thus facilitating the operation of threading the needle.

It will be observed that the lower portion of the arm C is split at *f* into two parts, *a* and *g*, the latter being very much more slender than the former, so as to form a spring, to the lower extremity of which is secured the half *m* of the guide *b*, the opposite half, *n*, being secured to the lower portion of the part *a*.

By reference to Fig. 1 it will be seen that there is a little above the thread-guide *b* a plate or block, *o*, secured to the part *a* of the arm C and overlapping the side of the spring *g*. At the opposite side, and secured to the spring *g*, is a similar bar, *r*, overlapping the limb *a*, thus allowing the spring no action save in the plane of the flat bar or arm C. The bar *r* serves the further purpose of a stop to butt against the needle, to accomplish an end that will be explained in describing the operation of the device.

To the lower extremity of the arm C is secured a cross-plate, *p*, a plan view of which is given in Fig. 5. The inner edge, *s*, of this plate is formed as shown in the drawings, so as to present an abrupt stop to the needle, upon which it impinges by the reaction of the spiral spring *c*, and is so adjusted that when in contact with the needle the eye thereof will coincide with the small orifice of the thread-guide *b*, the edge of said plate *p* being curved, as shown at *t*, Fig. 5.

The operation of my device is as follows: The threader being in the position shown in dotted lines, Fig. 1, it is turned down against the resistance of the spiral spring *c*. In this operation the curved edge of the plate or stop *p* comes in contact with the needle, which, being elastic, yields easily in the direction indicated by arrow No. 2, Fig. 2, until the shoulder *s*, Fig. 5, is passed, when it instantly springs back against the inside of the arm C, and is securely held in position for threading between the stops *s* and *r*. The thread is now passed into the guide, by which it is conducted into the eye of the needle, and being taken between the thumb and forefinger of the right hand is drawn in the direction indicated by arrow 2. Before passing out of the guide the thread would therefore occupy the position shown at *l*, Fig. 2. The lower part of the arm C is then pushed in the direction of arrow 1, Fig. 1, thus opening the division in the guide, as shown in dotted lines. This part of the operation will be made clear by observing that the half *m* of the guide *b* is immovable with reference to the needle in consequence of the stop *r* butting against it, (see Fig. 5,) said stop being rigidly secured to the spring *q*, to which the half *m* of the guide is attached. Therefore when the arm C is pushed in the direction indicated by the arrow 1, the half *n* of the guide is pushed away from the opposite half to a distance sufficient to allow the thread to pass out into the position shown at *i*. A little additional tension upon the thread now impinging upon the needle will suffice to spring the latter aside sufficiently to clear the stop *p* at the point *s*, Fig. 5, when the arm C will, by the reaction of the spiral spring

c, instantly fly back into the position shown in dotted lines, Fig. 1.

It will be noticed that the guide *b* being opened in the manner described completely obviates the damage to the thread, which usually results from allowing it to force its way through the division.

I am aware that a funnel-shaped split thread-guide is not new. I am also aware that a threader-arm adapted to turn up against the head of the machine is not new. I therefore do not broadly claim these parts; but

What I do claim, and desire to secure by Letters Patent, is—

1. In a needle-threader, the combination of the arm C, supporting-axis *d*, spiral spring *c*, stop *p*, and guide-blocks *r* and *o*, all of said parts being adapted for united operation, substantially as and for the purpose herein set forth.

2. In a needle-threader, the arm C, provided with a longitudinal slit, *f*, near its inner edge, so as to form a spring, to the lower extremity of which is attached one half, *m*, of the split funnel-shaped thread-guide, the other or fixed half, *n*, being secured to the rigid part *a* of the arm C, said rigid part being provided with a guide, *o*, and the free or spring part *q* with a guide and stop, *r*, all these parts combined substantially in the manner and for the purpose herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 15th day of June, 1883.

EDWIN N. McPHERRON.

Witnesses:

J. B. BRODMARKLE,
NEWTON GRAY.