S. M. FURMAN.

SETTERS AND THREADERS FOR SEWING-MACHINE NEEDLES.

No. 173,937. Patented Feb. 22, 1876.

FIG. 1.

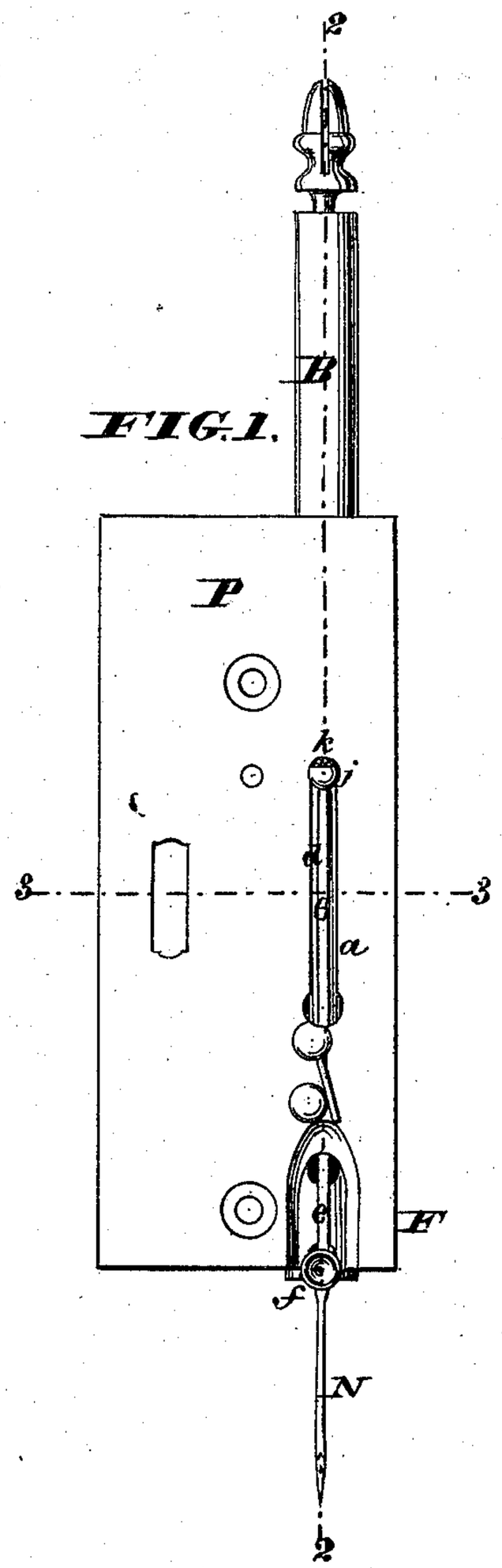

FIG. 2.

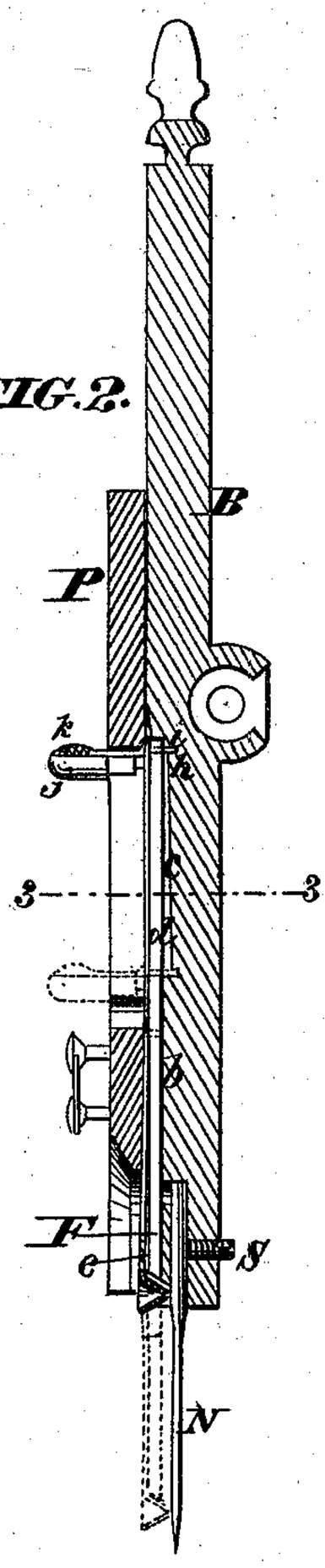

FIG. 3

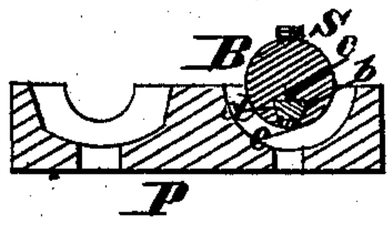

FIG. 4.

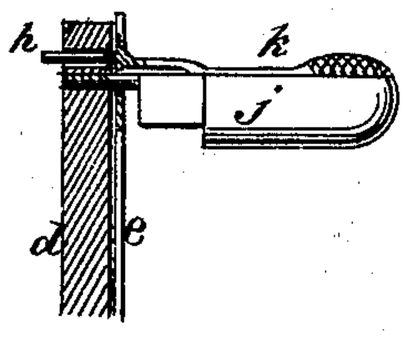

FIG. 5.

WITNESSES

Alex. H. Galt

Chas. J. Gooch

INVENTOR

Saml. M. Furman

By Octavius Knight Attorney

UNITED STATES PATENT OFFICE.

SAMUEL M. FURMAN, OF HENDERSON, KENTUCKY, ASSIGNOR OF ONE-THIRD HIS RIGHT TO CORNELIUS BAILEY.

IMPROVEMENT IN SETTERS AND THREADERS FOR SEWING-MACHINE NEEDLES.

Specification forming part of Letters Patent No. **173,937**, dated February 22, 1876; application filed November 5, 1875.

To all whom it may concern:

Be it known that I, SAMUEL M. FURMAN, of the city and county of Henderson, in the State of Kentucky, have invented an Improved Sewing-Machine-Needle Threader and Setter, of which the following is a specification:

This invention relates to those sewing-machine attachments which are incorporated with the machines to which they are applied, so as to be always ready for use.

The present device is a combined threader and setter, applied to the needle-carrier, and constructed and operating in a peculiar manner, as hereinafter set forth.

Sewing-machines of all, or nearly all, the different makes, may be provided with this attachment, the general object of which is to facilitate the use of ordinary needles.

The attachment is manipulated with the utmost ease, and is retracted automatically by the movement of the needle-bar.

By means of the attachment a needle can be set right at every attempt, and can be threaded by moonlight more readily than it could be threaded otherwise by daylight.

As a setter it serves also to insure setting the needle so that the loop will always be at right angles to the shuttle or hook, and with the needle thus set it is impossible for the machine to drop stitches.

Figure 1 is an elevation of a sewing-machine face-plate and needle-bar provided with this needle threader and setter. Fig. 2 is a vertical section of the same on the line 2 2, Fig. 1, showing the attachment in different positions. Fig. 3 is a transverse section on the line 3 3, Figs. 1 and 2. Figs. 4 and 5 are sectional detail views on a larger scale.

Figs. 1, 2, and 3 show the face-plate P and needle-bar B of a "Howe" sewing-machine, taken for illustration. These are the only parts of any machine that require alteration, and the changes in these consist of a slot, *a*, in the former, and two longitudinal grooves, *b c*, one within the other, in the needle-bar, to receive the needle threader and setter F. An ordinary needle, N, and set-screw S are shown as the kind in connection with which the device is designed to operate.

The main needle-bar groove *b* extends from about the middle of the bar to its lower end, and its sides are undercut, as shown in Fig. 3, to receive a dovetail slide, *d*. This carries a longitudinal blade-spring, *e*, attached at its middle length by a rivet, and this spring carries at its lower end a funnel, *f*, having an orifice equal in diameter to the largest needle-eye.

When the attachment is elevated or retracted, as shown in Fig. 1, and in full lines in Fig. 2, the funnel *f* is accommodated by an enlargement of the lower end of the groove *b*. The spring *e* keeps the funnel in contact with the needle, and a small guide-groove, *g*, shown in Fig. 5, prevents the lateral deflection of either.

The inner needle-bar groove *c* receives a stop-pin, *h*, projecting from the upper end of the spring *e*, and its length is determined by the distance from the orifice of the retracted funnel to the eye of the needle, or the point where this should be. This groove is shallow at its upper end, and deepens until it terminates in a square shoulder of sufficient depth to insure the arrest of the stop-pin, or, more properly, it shoals from this point to its upper end, where it deepens again, by an abrupt incline, to form a retaining-depression, *i*, which receives the stop-pin in the elevated or retracted position of the attachment.

The face-plate slot *a* receives two finger-pieces, *j k*, attached, respectively, to the slide *d* and spring *e* at their upper ends. The upper end of the slot accommodates the finger-pieces in their uppermost position. Its lower end is located a very little below the elevated position of the same when the needle-bar is lowered. In length the slot permits the reciprocation of the attachment-slide when the needle-bar is elevated, and that of the latter when the slide is elevated, without contact between its ends and the finger-pieces.

As shown in Fig. 4, the shank of the main finger-piece *j* passes freely through an orifice in the spring *e* and is secured in the slide *d*, and the upper finger-piece *k* is combined with the stop-pin *h*, works freely through an orifice in the slide *d*, and is screw-threaded where it passes through the spring, so as to provide

for adjusting the pin when its point wears. The upper surface of this finger-piece *k* is also roughened so that the finger will not slip on it.

Operation: When a needle is to be threaded or set, the finger is placed on the upper finger-piece *k*, a slight forward movement of which releases the attachment-slide *d*, and the whole is then pressed down as far as it will go, when the orifice of the funnel *f* will be found exactly where the eye of the needle should be. The thread end introduced in the funnel quickly finds its way through the eye of the needle already in position; and to set the needle, it is only necessary to introduce a pin or needle through the orifice of the funnel, to locate the eye at the proper depth, so as to form the loops at right angles to the shuttle or hook, as required for perfect work.

The attachment may be elevated by hand; but, if not, it is retracted automatically at the first downstroke of the needle-bar.

The main finger-piece *j* comes in contact with the lower end of the face-plate slot *a*, and is carried upward sufficiently for the stop-pin *h* to enter the retaining depression *i*. The upper end of the spring *e*, which has been set by the inclined back of the stop-groove *c*, now presses the end of the stop-pin against the inclined bottom of the depression *i*, and the direction of the latter causes the attachment to slide upward slightly, so that the finger-piece will not strike after the first stitch, thus preventing noise.

An enlargement at the lower end of the face-plate slot *a* allows the outer ends of the finger-pieces to pass through when the face-plate is removed, and by a second retraction of the stop-pin the attachment may then be removed from the needle-bar for inspection or repair.

The following is claimed as new, and of this invention, namely:

1. The combination, with a needle-carrier, of a needle threader and setter, adapted to slide down in front of the needle, and provided with a funnel and a stop to arrest this funnel in proper position, substantially as herein illustrated and described.

2. The combination of the slide *d*, the spring *e*, and the funnel *f*, the latter being supported by the spring, and constructed with a guide-groove, *g*, to embrace the needle, as specified, for the purpose set forth.

3. In a sliding needle threader and setter, the stop-pin *h*, and the spring *e* carrying the same, in combination with a needle-bar having a stop-groove, *c*, shoaling to its upper end and there terminating in a retaining-depression *i*, having an inclined bottom, as herein described, for the purpose set forth.

4. The combination of the slide *d*, spring *e*, funnel *f*, stop-pin *h*, and finger-pieces *j k*, with the slotted face-plate P *a*, and the grooved needle-bar B *b c*, as herein specified.

SAMUEL M. FURMAN.

Witnesses:

C. H. JOHNSON,

B. S. CHAMBERS.