

A. H. DE VOE.
 WORK HOLDER FOR SEWING MACHINES.
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939,894.

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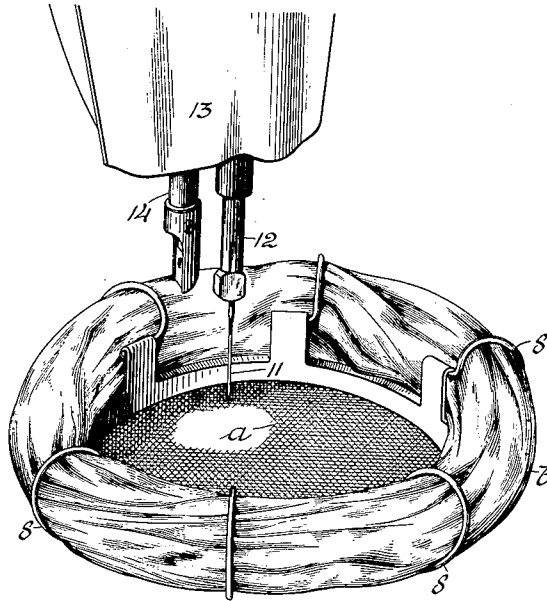


Fig. 1.

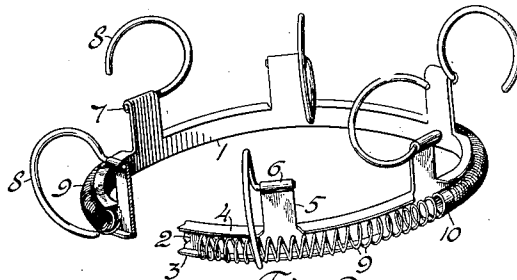


Fig. 2.

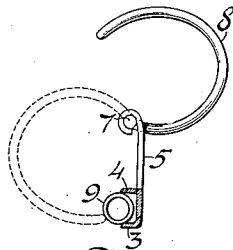


Fig. 3.

WITNESSES:

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WORK-HOLDER FOR SEWING-MACHINES.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALBERT H. DE VOE, a citizen of the United States, residing at Elizabeth, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Work-Holders for Sewing-Machines, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention has for its object to provide a simple and effective work-holding device for holding a section of the work to be darned or embroidered stretched for a stitching operation while holding the surrounding portions of the work securely out of the path of the reciprocating needle forming a member of the stitch-forming mechanism.

15 In its preferred form, the work-holder comprises a rigid ring or hoop constituting a stretching frame to which the margin of the work surrounding its stretched portion is clamped by means of an elastic band and the part of the work outside of the stretched portion is confined around the exterior of the stretching frame to prevent interference with the free lateral movement of the frame to properly place the darning or embroidering stitches and permit unobstructed inspection of the stretched portion of the work by the operator.

20 The invention further includes certain details of construction of the device to be hereinafter described and pointed out in the appended claims.

25 In the accompanying drawings, Figure 1 is a perspective view of a work-holder embodying the present improvements with the work therein in operative relation with the stitch-forming mechanism. Fig. 2 is a perspective view of the work-holder with some of its work-embracing fingers in operative position and others in retracted or inoperative position. Fig. 3 is a sectional elevation upon an enlarged scale of one side of the work-holder, showing the work-embracing finger in full and dotted lines to represent respectively its retracted and operative relations with the stretching frame.

30 The stretching frame is shown herein comprising an endless band or hoop of sheet metal 1 having an external groove or channel 2 formed by the lower continuous lip 3 and the series of upper spaced lips 4 intermediate which rise the lugs 5 having at their

upper ends the spring bearing sockets 6 embracing the shanks 7 of the substantially semi-elliptical work-embracing fingers 8 having their free extremities turned outwardly.

Intermediate the relatively spaced lips 3 and 4 and lying within the channel 2 of the stretching frame is arranged a detachable endless elastic band, shown herein in the form of a helical spring 9 having the ends united by a suitable connection 10 of any well-known or suitable form. The diameter of the spring 9 is preferably slightly greater than the spacing of the confining lips 3 and 4 of the stretching frame, as represented more particularly in Fig. 3, in order that, when a ply of material is stretched over the edges of such lips and the confining spring 9 slipped over the same, the latter will clamp the material along the lines of contact only afforded by the adjacent edges of the lips 3 and 4 and form indentations therein in addition to the frictional action against slipping under the strain of the stretched portion of the work during a stitching operation.

35 While an extensible elastic band of round cross-section such as that represented herein is desirable, for the reason above indicated, it is evident that any other suitable form of spring may be used for clamping the margin of the work surrounding its stretched portion upon the stretching frame.

40 As will be observed by reference to the drawings, the stretching frame is preferably constructed of oval shape for convenient insertion in the narrower portions of stockings to be subjected to the darning operation, and the spring bearing sockets 6 for the shanks 7 of the work confining fingers 8 are disposed in substantially tangential relation with the body of such frame in order that the fingers may swing transversely to the latter, and thus outwardly to engage and confine the article to be stitched and inwardly into retracted inoperative position to reduce as far as possible the bulk of the device for introduction into the article to be mended. As will be seen by reference to Figs. 2 and 3, the fingers 8 are constructed of such form and dimensions that their free extremities, when thrown into operative position, will abut against the outer side of the spring 9, so as to not only form with the same and the lugs 5 a closed loop for positively retaining the unstretched portion of

the work, but to lock the spring 9 firmly in place and thus prevent its movement under any strains imposed upon the stretched portion of the work in the stitching operation.

- 5 As represented in Fig. 1, the work-holder is shown applied to a stocking having the stretched portion *a* surrounded by the frame 1 and the unstretched portion *b* confined by the several work-embracing fingers 8 and the
10 spring 9 to the exterior of the stretching frame so as to prevent escape of any of the unstretched portion and its introduction beneath the stretched portion in the shifting of the frame beneath the needle 11 of the
15 stitch-forming mechanism, which is carried by the needle-bar 12 mounted in the head 13 of the sewing machine bracket-arm, the presser-foot being removed from the presser-bar 14 to permit the free movement of the
20 work-holding frame in relation to the stitching mechanism.

Having thus set forth the nature of the invention, what I claim herein is:—

1. A work-holder comprising a stretching
25 ring, an elastic band coöperating therewith in clamping the margin of that portion of the work stretched across said ring, and a series of spaced work-embracing fingers fulcrumed upon and substantially tangen-
30 tially with the adjacent portions of said ring and adapted to swing in planes transverse to that of said ring.

2. A work-holder comprising a stretching ring, means for maintaining a section of the
35 work stretched across the same, and a series of spaced work-embracing fingers adapted to be shifted transversely in relation to the plane of said ring and serving in conjunction therewith to confine the unstretched
40 portion of the work.

3. A work-holder comprising a stretching ring, an elastic band coöperating therewith in clamping the margin of that portion of the work stretched across said ring, and
45 a series of fingers reflexly bent to embrace the unstretched portion of the work exterior to said ring and having their free ends movable toward and from the latter and adapted when in operative position to con-
50 fine the spring in engagement with the work.

4. A work-holder comprising a stretching ring having a work-engaging edge and a series of spaced fulcrum lugs with tangen-
tially arranged bearings offset from the plane of said work-engaging edge, an elastic band 55 coöperating with said stretching ring in clamping the margin of that portion of the work stretched across said ring, and a series of work-embracing fingers having angularly
60 arranged shanks each fitted to one of said bearings and adapted to swing transversely of said ring.

5. A work-holder comprising a stretching ring provided with an external work-receiving groove or channel, and an endless elastic 65 band of circular cross section exceeding in diameter the width of said groove or channel in the stretching ring, and coöperating with the latter in clamping the margin of that portion of the work stretched across said 70 ring.

6. A work-holder comprising a stretching ring provided with spaced externally projecting lips or flanges and a series of lugs having tangentially arranged spring sockets, 75 an elastic band of circular cross-section exceeding in diameter the spacing of said lips or flanges in the stretching ring, and a series of work-engaging fingers of semi-elliptical form having angularly arranged shanks 80 journaled within said bearings, and adapted to confine the unstretched portions of the work to the exterior of said stretching ring.

7. A work-holder comprising a stretching ring, an elastic band coöperating therewith 85 in clamping the margin of that portion of the work stretched across said ring, and a series of fingers reflexly bent to embrace the unstretched portion of the work exterior to said ring and having their free ends mov- 90 able endwise toward and from the exterior of the latter.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

ALBERT H. DE VOE.

Witnesses:

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H. J. MILLER.