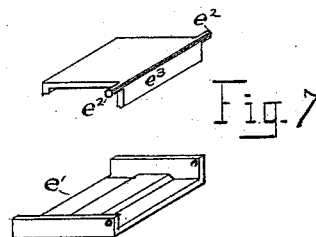
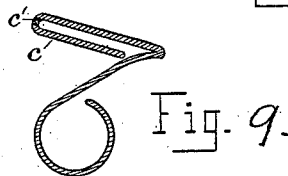
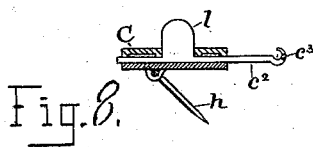
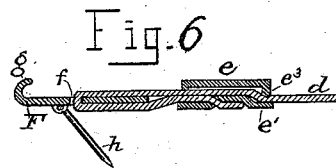
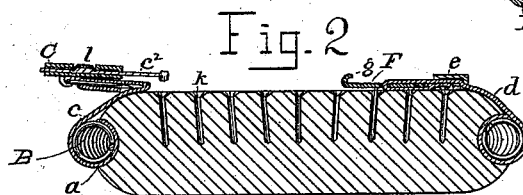
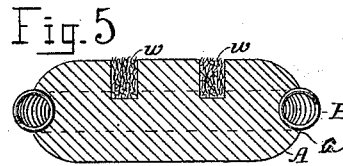
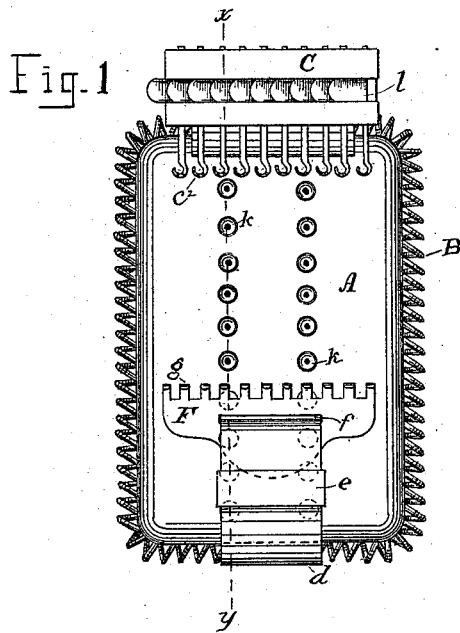


(No Model.)

C. C. GALE.
DEVICE FOR DARNING STOCKINGS.

No. 417,718.

Patented Dec. 24, 1889.



Witnesses;
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L. Pruitts

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Att'y.

UNITED STATES PATENT OFFICE.

CHARLES C. GALE, OF GLENVILLE, OHIO.

DEVICE FOR DARNING STOCKINGS.

SPECIFICATION forming part of Letters Patent No. 417,718, dated December 24, 1889.

Application filed April 5, 1888. Serial No. 269,755. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. GALE, of Glenville, county of Cuyahoga, State of Ohio, have invented a certain new and useful Improvement in Devices for Darning Stockings and for Analogous Uses, of which the following is a full, clear, and exact specification.

My invention relates to improvements upon the device for which Letters Patent No. 370,775, dated October 4, 1887, were issued to me; and it consists in providing means for holding the darning devices while in operation, and for fastening in position the fabric to be operated upon, as hereinafter to be fully described, and pointed out in the claims.

In the drawings, Figure 1 is a plan view showing the parts in position ready for use. Fig. 2 is a sectional view on the line $x y$ of Fig. 1. Fig. 3 is an end view, and Fig. 4 a side view, of one of the pivoted hooks c^2 . Fig. 5 is a sectional view at right angles to the line $x y$ of Fig. 1, showing modified forms of construction of the holder A. Fig. 6 is a detached sectional view of the clamp e , plate F, and web d . Fig. 7 is a detached view of the clamp e , with its two parts separated to show their construction. Fig. 8 is a sectional view of the casing C, and Fig. 9 a sectional view of its carrier c . Figs. 6, 8, and 9 are in section on the line $x y$ of Fig. 1.

In the darning of stockings or analogous operations, unless the fabric to be operated upon is stretched or otherwise fastened, there is a tendency in drawing the stitches or darning-thread to contract the opening or to draw and distort the fabric, which cannot be well counteracted when the goods are held by the hand, or fastened merely by pins. I therefore provide a holder A, made of wood or other suitable light material, of a size to be conveniently held, to which the fabric and darning devices are to be attached in use. Around the edge of the holder a groove a is formed, in which a spring B, preferably of coiled wire, is seated, and to which spring, at one end of the holder, is affixed a carrier c , preferably made of sheet metal, bent as shown in Fig. 9, and provided with the holes c' or their equivalent, to receive the pins h of casing C.

C is a stand or light casing, in which is pivotally arranged a series of hooks c^2 , having tappets l , which project through a slot in the casing C, as shown in Fig. 8.

F is a plate provided with recurved hooks on its edge, and having a slot f , by which it may be secured to the webbing d . A strip of webbing d , or equivalent material, is secured to the spring B and passes through a clamp e , thence through the slot f and back to the clamp, to which it is secured, so that by moving the clamp along the strip d plate F may be set at any required distance from the casing C. The clamp e may be of any simple kind, a suitable form being a common suspender-clamp composed of two bent plates, the lower one e' slotted or perforated for the attachment of the end of webbing d and having its ends turned up and perforated, and the upper plate having pivots e^2 to enter the perforations of plate e' , and having its sides e^3 turned down, so as to pinch the webbing between the two plates when they are drawn parallel to each other, as shown in Figs. 2 and 6. The casing C and the hooked plate F are each provided on the under side with pins h , adapted to penetrate the fabric to be operated upon, and the holder A is provided with means to receive the pins h and hold the casing C and plate F securely in position when so applied. For this purpose holes k may be formed in the holder A, as shown in Figs. 1 and 2; but I prefer to form two longitudinal grooves in the face of the holder, in place of the two rows of holes, and to insert in the holder strips $w w$, of felt, cloth, or any equivalent fibrous material adapted to receive and hold the pins h . By this latter construction (shown in cross-section in Fig. 5) the casing C and plate F may be set at any point on the holder by inserting their pins h in the strips w , and need not be attached to the spring B. The pivoted hooks c^2 are preferably made flat, so as to separate the warp-threads and permit of readily passing the needle between them, and are each provided with a notch c^3 on each side to receive the thread and prevent its disengagement from the hook while in use.

A rubber, or solid wire, or flat spring may be used in place of the coiled-wire spring, but I have found the latter preferable in use.

In using my improved device for darning, the fabric to be darned is placed upon the holder A, from which the spring B, casing C, and plate F have been removed, the portion to be operated upon is adjusted about centrally

on the holder, and the spring B is sprung over the holder and goods, and falling into the groove *a* draws the goods smoothly and firmly upon the holder and fastens it in place. The casing and plate are now adjusted so as to leave the desired space between them, either by means of the pins *h* or by sliding the clamp *e*, or both. The warp-thread is woven between the fixed hooks *g* and the pivoted hooks *c*² and fastened at the ends, and the darning is proceeded with in the usual way by passing a needle threaded with the weft-thread alternately from side to side between the warp-threads, taking one or more stitches in the fabric on each side, and reversing the hooks *c*² by means of the tappets *l*, between each two passages of the weft-thread. In darning a long opening it is advisable, in order to prevent narrowing the work in the center, to employ two of the casings C, one being placed at one end of the opening, the plate F at the other end, and a second casing between the two. The warp in such cases is crossed upon the hooks *c*² of the intermediate casing, passing thence under the casing to the hooks of the other casing set at the end of the opening, and the reversal of the warp-threads between each crossing of the weft-thread is effected by reversing the hooks of the intermediate casing, which is moved back from time to time as the work progresses until near the end, when it is removed, and the casing at the end of the opening is then used to reverse the warp-threads.

The above-described casing and hooks, hooked plate, and holder, are also applicable to the weaving by hand of various small fabrics for ornamental purposes—such as neckties, suspenders, scarfs, tidies, lamp-mats, &c.—for which purpose the holder A may be larger than is required for darning, and the plate F and casing C may each have an increased number of hooks. When used for such weaving, the warp-thread is to be strung around the hooks, as usual, and fastened to them, and the weft-thread passed between them, reversing the hooks *c*² between each two passages of the weft-thread, as in darning, but no fabric being placed upon the holder.

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

1. The combination, with a casing containing a series of pivotally-mounted hooks having tappets attached thereto, by means of which said hooks may be reversed in position, and a plate provided with a series of fixed hooks, both said plate and said casing having pins attached thereto, of a holder or support adapted to be engaged by the pins of the casing and plate to secure the latter in place upon the holder, substantially as described.

2. The combination, with a casing containing a series of pivotally-mounted hooks having tappets attached thereto, by means of which said hooks may be reversed in position, and a plate provided with a series of fixed

hooks, both said plate and said casing having pins attached thereto, of a holder or support having fibrous material inserted therein, to which holder said casing and plate may be secured by inserting their pins in such fibrous material, substantially as described.

3. The combination, with a casing containing a series of pivotally-mounted hooks having tappets attached thereto, by means of which said hooks may be reversed in position, and a plate provided with a series of fixed hooks, both said plate and said casing having pins attached thereto, of a holder or support grooved at its edges and adapted to be engaged by the pins attached to said casing and plate to secure the latter in place upon the holder, and a spring fitting into the grooved edges of said holder to retain the fabric thereon, substantially as described.

4. The combination, with a casing containing a series of pivotally-mounted hooks having tappets attached thereto, by means of which said hooks may be reversed in position, and a plate provided with a series of fixed hooks, both said plate and said casing having pins attached thereto, of a holder or support grooved at its edges and having fibrous material inserted in such holder to receive and hold the pins attached to such casing and plate and secure the same in place upon the holder, and a spring fitting into the grooved edge of the holder to retain the fabric thereon, substantially as described.

5. The combination, with a casing containing a series of pivotally-mounted hooks having tappets attached thereto, by means of which said hooks may be reversed in position, and a plate provided with a series of fixed hooks, both said plate and said casing having pins attached thereto, of a holder or support having fibrous material inserted therein to receive and hold the pins of said casing or plate, and having its edges grooved, and a spring fitting the grooved edge of the holder to secure the fabric thereon, said spring having attached thereto a carrier provided with holes or their equivalent to receive and hold the pins of said casing, substantially as described.

6. The combination of the holder or support having a grooved edge and a removable spring fitting said groove, the casing having pins attached thereto and containing a series of pivotally-mounted hooks having tappets by which said hooks may be reversed in position, the carrier secured to said spring and having holes or their equivalent for the attachment thereto of said casing, and the plate with fixed hooks adjustably secured to said spring by means of a strip of webbing or other flexible material and a clamp, substantially as shown and described.

CHARLES C. GALE.

Witnesses:

L. R. VORCE,
LONN PRENTISS.