(No Model.)

W. A. R. AIRD.

DARNING APPARATUS.

No. 534,735. Patented Feb. 26, 1895.

Fig. 1.

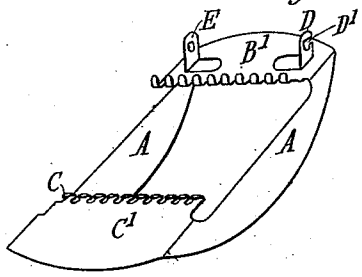


Fig. 2.

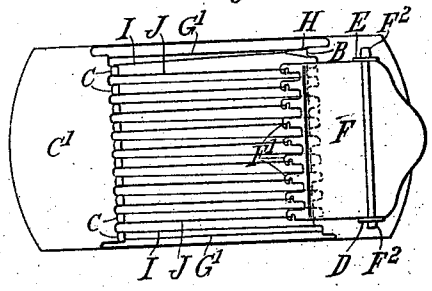


Fig. 3.

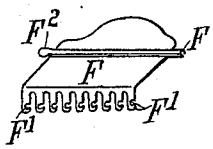


Fig. 4.

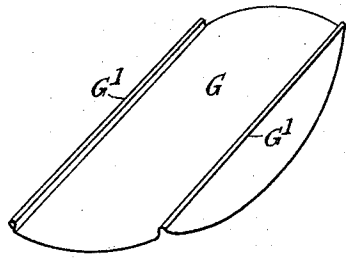


Fig. 5.

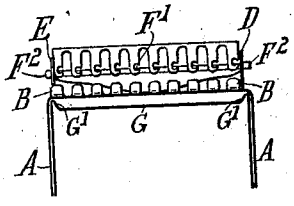


Fig. 6.

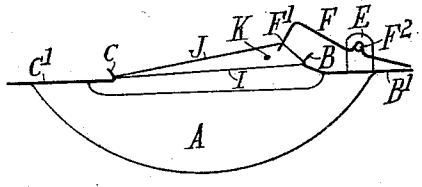
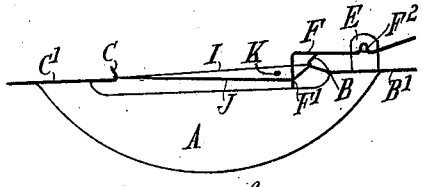


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM ALBERT RICHARD AIRD, OF READING, ENGLAND.

DARNING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 534,735, dated February 26, 1895.

Application filed September 23, 1893. Serial No. 486,322. (No model.) Patented in England August 20, 1889, No. 13,114.

To all whom it may concern:

Be it known that I, WILLIAM ALBERT RICHARD AIRD, a subject of the Queen of Great Britain, residing at Reading, county of Berks, England, have invented certain new and useful Improvements in Darning Apparatus, (for which I have obtained Letters Patent of Great Britain, No. 13,114, dated August 20, 1889,) of which the following is a specification.

This invention the object of which is to facilitate the darning of stockings and other articles and to produce a cheap and useful apparatus will be best understood by reference to the accompanying drawings, in which—

Figure 1 is a perspective view of the frame, and Fig. 2 a plan of the same with the warp threads in position. Fig. 3 is a perspective view of the hook plate and Fig. 4 is the block or support over which the work is stretched. Fig. 5 is a cross section of the apparatus showing the block and the frame in their respective positions when in use. Figs. 6 and 7 illustrate the method of operating this device.

Like letters represent like parts throughout the drawings.

A, Fig. 1, is the frame which carries at one end a row or set of hooks B on the platform B′ and at the other end a row or set of hooks C on the platform C′. These hooks are preferably arranged each set in a single row and being stamped out of a single sheet of metal in one with the frame may naturally project from the platforms B′ and C′. However it will be understood that there is no absolute necessity for the hooks B or C to be arranged in straight rows nor yet for their being attached to the platforms at all so long as they are rigidly fixed to the frame A and in suitable positions for the work. D and E are two brackets for carrying the hook plate F and G is the block or stretcher around which the work is placed and which may be placed in position between the walls A of the frame.

The working of this apparatus is as follows:—The work at the part to be mended is placed over the stretcher G and pushed into the frame A so that the work is stretched across and raised above the plate G by the ridges G′ and secured by pressure against the side walls of the frame A the place to be mended lying in the center of the frame and between the rows of hooks B and C. A thread of darning cotton or other material is now taken and secured to the end of one of the hooks B by means of a loop H as shown in Fig. 2, and wound round backward and forward over the two sets of hooks B and C as shown in Figs. 2, 6 and 7, and secured to the work by a stitch or two. The hook-plate F is now applied, the alternate threads being placed in the hooks F′ shown clearly in Fig. 3 and the plate secured in the brackets D and E by means of its projecting ends or pivots F^2, both brackets being provided with holes to accommodate the plate F and the bracket D being preferably slotted as well at D′ to facilitate the insertion and removal of the hook plate F.

The threads I shown in thin lines in the drawings are the alternate threads which are not engaged by the hook plate F. The thick lines J represent the threads which are operated by the hook plate. The hook plate is now pressed either up or down, say up, as in Fig. 6, and the needle (shown in cross section at K Figs. 6 and 7) carrying the thread is then passed across the apparatus between the threads I and J as shown in Fig. 6 where the threads J which are moved by the hook plate F are shown raised and the needle K is shown passing between the two threads. This operation being completed the thread is drawn as tight as necessary and a stitch taken in the work at the opposite side to that by which the needle entered. The hook-plate F is now depressed and the threads assume the positions shown in Fig. 7 where the threads J are shown below the threads I. The needle is now passed back between the threads I and J and its thread drawn tight and secured in the work as before and the operation repeated as often as may be necessary until the work is finished. By this means it will be seen that a woof is produced the threads of which pass alternately above and below the threads I and above and below the threads J owing to the alternate change of position of the hook plate F. Thus, in Fig. 6, it will be observed that while the needle K with its thread is passing above the threads I it is passing below the threads J and in Fig. 7 while it is passing below the threads I it is passing above the threads J, in both cases passing between the two sets of threads.

If desired a few rows of darning stitches may be taken across the field of work at the commencing end and the thread may then be wound upon the rows of hooks B and C and after the work is completed a few more rows of similar stitches may be taken at the opposite end by way of finishing off. When this is done the loop H will not be required. When desired also in forming the woof the needle as it is passed backward and forward between the weft threads may be dipped down so as to engage a portion of the work as well as the warp threads by which means the patch produced in working this apparatus is securely attached at some or all parts of the work. At the finish the thread may be finally fastened off by a few stitches in the usual manner.

To remove the work from the frame the hook plate F may first be withdrawn from its brackets D E and disengaged from its threads and the stretcher G and work then withdrawn from the frame A.

It will be understood of course, that I am not limited to the precise details of construction described and shown, since various immaterial changes therein could be resorted to and still be within the scope of my invention. It will also be understood that I am not limited to the character of the material employed in the construction of my improved darning device, since with the cheaper forms, tin or similar cheap metal might be employed, while a superior class of metal than tin will be employed in constructing the device on a more expensive scale.

It will be observed that the general shape of both the frame A, and the stretcher G, is rounded or oval on their under sides, which facilitates the fabric which is to be darned to be drawn together, as in the ordinary manner of darning, such for instance, as in the darning of a stocking. It will be further observed that the device or apparatus is very light, and is easily and cheaply made.

I claim—

A darning apparatus constructed of a frame having side pieces separated from each other by an intermediate space, and joined together at the ends by platforms, a series of hooks arranged along the adjacent edges of the platforms, an independent swinging plate provided with hooks and mounted upon one of the platforms, and a stretcher device fitting the space between the sides and formed along its longitudinal upper edges with ribs, substantially as shown and for the purpose described.

In testimony whereof I have hereto set my hand in the presence of the two subscribing witnesses.

WILLIAM ALBERT RICHARD AIRD.

Witnesses:
HAROLD WADE,
HARRY B. BRIDGE.