No. 662,202. Patented Nov. 20, 1900.

W. RAGEN.

DARNING ATTACHMENT FOR SEWING MACHINES.

(Application filed June 24, 1899.)

(No Model.)

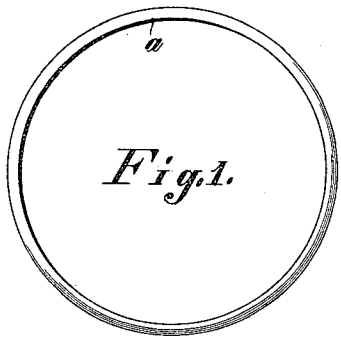


Fig. 1.

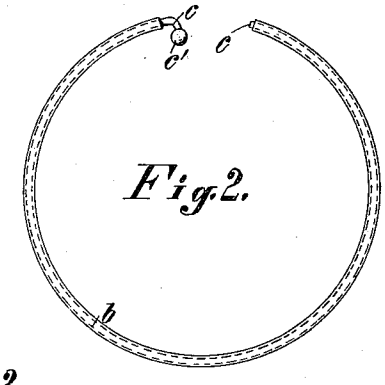


Fig. 2.

Fig. 3.

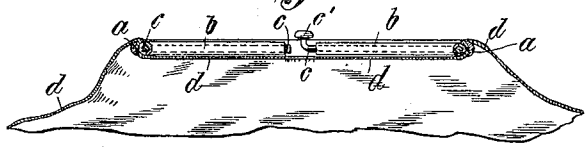
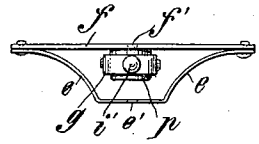


Fig. 4.



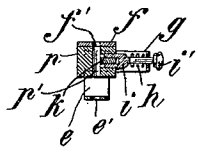
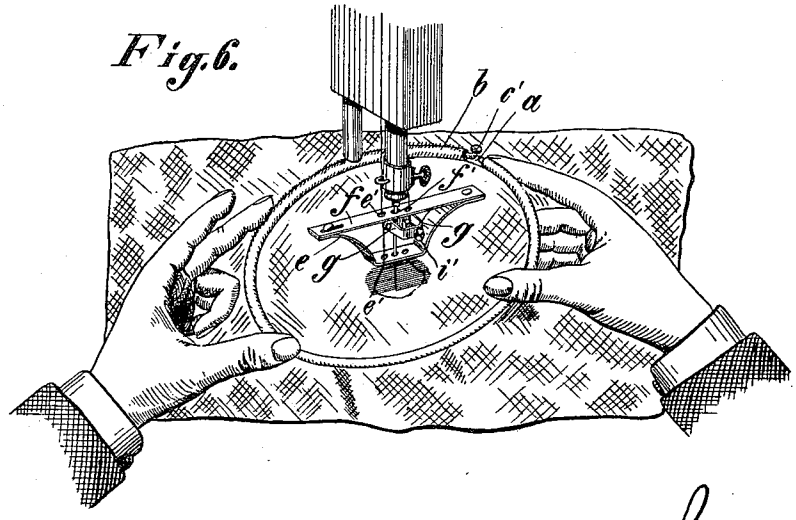


Fig. 5.

Fig. 6.



Witnesses:
J. Green
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UNITED STATES PATENT OFFICE.

WERNER RAGEN, OF COLOGNE, GERMANY.

DARNING ATTACHMENT FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 662,202, dated November 20, 1900.

Application filed June 24, 1899. Serial No. 721,726. (No model.)

To all whom it may concern:

Be it known that I, WERNER RAGEN, a subject of the King of Prussia, German Emperor, residing at Cologne-Lindenthal, in the Kingdom of Prussia and German Empire, have invented certain new and useful Improvements in Darning Attachments for Sewing-Machines, (for which I have applied for patents in England, No. 10,475, dated May 18, 1899; in Austria, dated May 16, 1899; in Hungary, No. 7,352, dated May, 18, 1899; in France, No. 276,966, dated May 19, 1899; in Belgium, No. 11,087, dated May 17, 1899; in Switzerland, No. 21,156, dated May 12, 1899, and in Denmark, No. 515, dated May 13, 1899,) of which the following is a specification.

The subject of the present invention is a darning attachment for sewing-machines characterized by an improved construction of spring presser-foot adapted for ready application to the needle of a sewing-machine and to be self-adjustable thereon and employed in conjunction with a suitable cloth-holder serving to tightly stretch the fabric in all directions around the hole to be darned.

In the accompanying drawings, forming part of this specification, Figure 1 is a plan of the outer ring of the cloth-holder. Fig. 2 is a plan of the elastic open inner or clamping ring thereof. Fig. 3 is a section of the cloth-holder with the cloth in position. Fig. 4 is a front view of the detachable presser-foot. Fig. 5 is a vertical transverse section of the same. Fig. 6 is a perspective view of the device as it appears when in use.

The cloth-holder consists of a complete metal ring *a*, having a falcated profile, and a second broken ring *c* with a spring action and whose one end is curved inward and provided at its extremity with a small handle *c'*. This ring *c* is preferably provided with an india-rubber covering *b*, which serves to hold the cloth to be darned, which latter (shown clearly in section at *d*, Fig. 3) is laid almost flat over the ring *a*, and so that the hole to be darned is at or about the middle of the same ring. The cloth is fixed in position and held stretched evenly all around like the skin of a drum by merely pressing down the ring *c* into the falcated groove of the ring *a*.

The presser-foot, the purpose of which is to press the material to a certain extent each time the needle of the sewing-machine descends, consists of a flat steel spring *e*, bent into a U shape, and a metal cross-piece *f*, which connects together the ends of the spring, said cross-piece being provided with the clamp whereby the presser-foot is secured to the needle of the sewing-machine. If desired, instead of using a separate cross-piece *f* the metal spring *e* and its cross-piece *f* can be made direct from a single strip of metal properly bent. The clamp for fixing the presser-foot to the needle of the sewing-machine consists of a socket *p*, attached to the cross-piece *f* and having a central hole *f'* for the reception of the needle of the sewing-machine and a second hole through one side at right angles to the first hole. Fitted in the side hole is a movable pin *i*, which has at its inner end a packing *k*, of felt, cork, or rubber. The outer end of the movable pin *i* terminates in a small knob *i'*, and a spiral spring *h* between the pin *i* and the yoke *g*, which latter is secured to the socket and holds the pin in place, presses the pin toward the left, so that the packing *k* presses against the needle of the sewing-machine when passed through the hole *f'*. Two holes *e'* are made, one at each side of the central hole *f'*, in both the cross-piece *f* and the bottom of the spring *e* for the passage of the thread.

The apparatus is operated in the following manner: The button *i'* of the movable pin *i* is first taken hold of by the fingers and then pulled to the right, so that the central hole *f'* is free from obstruction. After this the needle of the sewing-machine is brought to its upper position, and the presser-foot is then slipped on the needle (while still in its raised position) from below to such an extent that the point of the needle projects out a little beyond the bottom of the spring *e*. When this has been done, the button *i'* is let go, with the result that the packing under the action of the spiral spring *h* presses against the surface of the needle and in this manner holds the presser-foot in position. The needle of the sewing-machine is now brought into its lowest position, so that the bottom of the spring *e* presses on the cloth, with the result that the presser-foot, owing to the reaction of the spring, is automatically forced upward on the needle into the proper working position.

In this position it remains, and any further sliding up or down is prevented by the pressure of the spring *h* upon the packing.

What I claim, and desire to secure by Letters Patent of the United States, is—

The detachable presser-foot consisting of the perforated horizontal cross-bar *f* downwardly-projecting spring *e* and the clamping device comprising the socket *p*, spring *h*, rod *i* and packing *k* carried by said cross-bar and adapted to hold it by frictional contact on the needle and to be self-adjusting thereon, as explained.

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

WERNER RAGEN.

Witnesses:
NIKOLAUS MEURER,
WILLIAM H. MADDEN.