United States Patent [19]

Weber

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[54] **DARNING AND EMBROIDERY ATTACHMENT**

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[52] **U.S. Cl.** **112/236**

[51] **Int. Cl.** **D05b 29/00,** D05c 9/02

[58] **Field of Search** 112/236, 235, 240, 60, 112/61, 78, 121, 151

[56] **References Cited**

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[57] **ABSTRACT**

A unitary molded darning and embroidery attachment for a sewing machine. A plastic clamping member suitable for attachment to a sewing machine presser bar, and a plastic darning and embroidery member, including a striker arm acted on by an endwise reciprocating needle bar of a sewing machine over a portion of its endwise reciprocation, are joined by a resilient member integrally molded with the clamping member and darning member. The motion imparted to a darning foot portion of the darning member by the action of the needle bar on the striker arm, which is utilized to lift the darning foot from the work material in order to allow the work fabric to be moved, is effectively isolated from the clamping member and the presser bar by the integrally molded resilient member.

2 Claims, 4 Drawing Figures

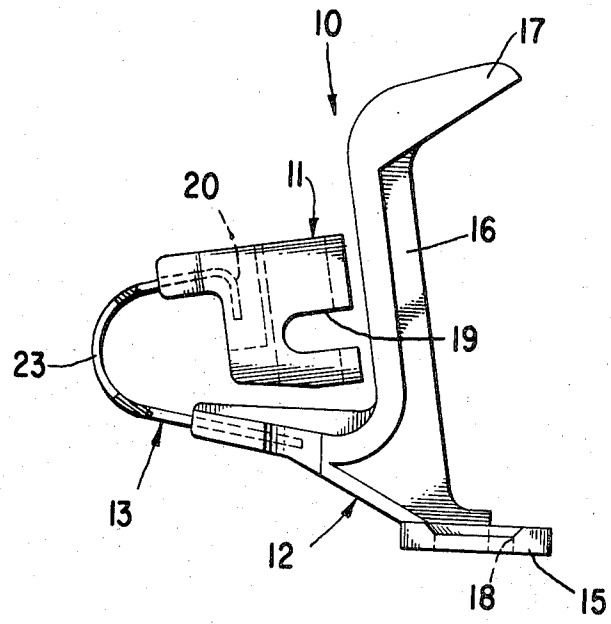
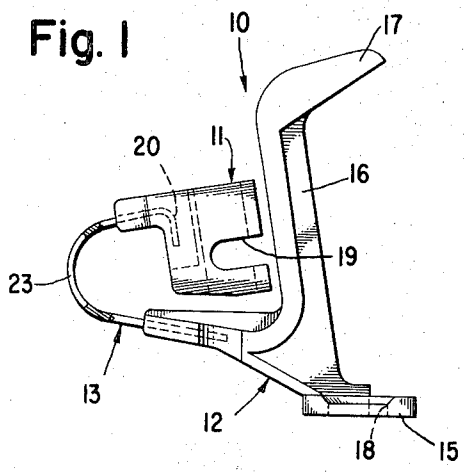


Fig. 1



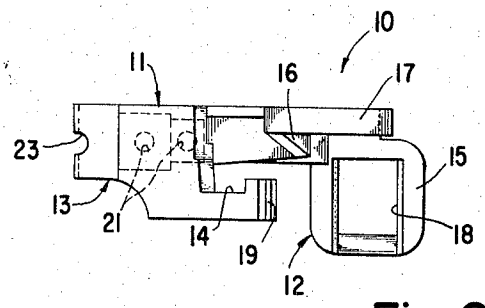


Fig. 2

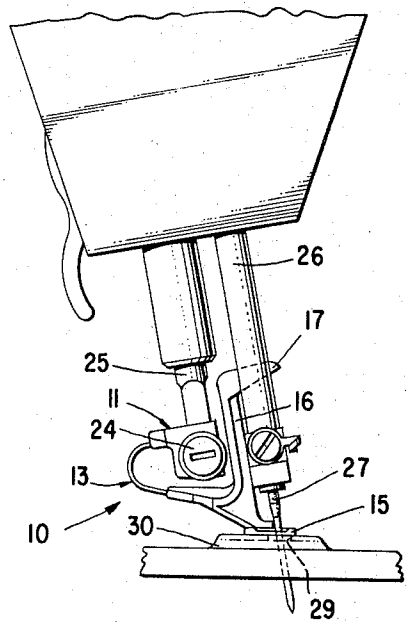


Fig. 3

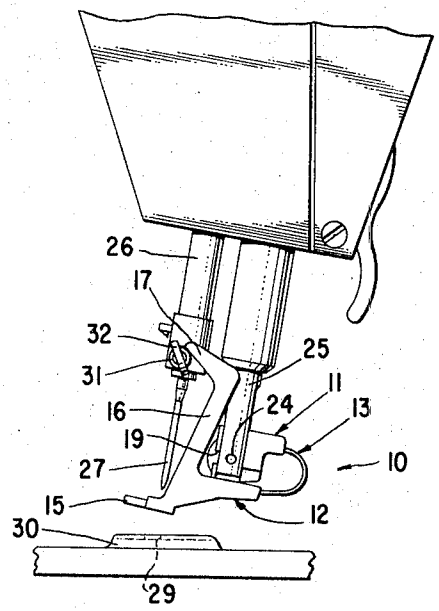


Fig. 4

DARNING AND EMBROIDERY ATTACHMENT

BACKGROUND OF THE INVENTION

The instant invention relates to a darning and embroidery foot designed for use in a general purpose sewing machine, specifically a family sewing machine. In darning or embroidery work it is required to raise the presser foot after each needle penetration in order that the work fabric may be shifted as desired by the artisan. Prior art darning and embroidery feet for family sewing machines have been either extremely simple devices made from wire, characterized by their fragility and, in some cases, bulkiness or complex devices more notable for their cost.

SUMMARY OF THE INVENTION

The invention subject of this patent is a darning and embroidery presser foot which is extremely simple, of rugged construction and low in cost due both to the material used and the method of manufacture. Major portions of the invention are formed of plastic material which are molded in one operation on the extremities of a stamped and hardened metallic spring material to form a strong, one piece attachment not readily susceptible to damage or loss of any component part.

BRIEF DESCRIPTION OF DRAWINGS

For a better understanding of the invention and the advantages thereof, reference may be had to the attached specification and accompanying drawings wherein:

FIG. 1 is a side view of a darning and embroidery foot embodying the present invention partially in section to illustrate detail,

FIG. 2 is a view in plan of the foot shown in FIG. 1,

FIG. 3 is a left side elevational view of a portion of a head of a sewing machine equipped with the darning and embroidery foot shown in FIG. 1 with the sewing needle shown in the down position, and

FIG. 4 is a right side elevational view of a portion of a head of a sewing machine with the sewing needle shown in the up position to indicate the effect of the position of the needle clamp on the darning and embroidery foot.

Referring to FIG. 1 is shown a darning and embroidery foot **10** having a clamping member **11** of plastic material, a darning member **12** also of plastic material, joined by a curved resilient beam **13.**

The darning member **12** has at the bottom end thereof a darning foot **15** having a large opening **18** therein. The darning foot **15** is joined by a ribbed plastic section **16** to a forwardly extending striker arm **17.**

The clamping member **11** is molded with a flat surface **14** for abutment with the customary slabbed surface on a presser bar of family sewing machines, and a slot **19** to accommodate the screw normally used to affix a presser foot to the presser bar.

The resilient beam **13** is fashioned on one end with a right angle bend **20** and on both ends with apertures

21 designed to improve the retention of the resilient beam in the clamping member **11** and darning member **12.** In addition, the resilient beam **13** is fashioned with an elongated opening **23** in order to localize bending of the resilient member to an area removed from the plastic material because of the reduced cross section of the resilient beam adjacent the elongated opening. Thus the flexing of the resilient beam **13** has little or no detrimental effect on the retention of the beam in the clamping member **11** and darning member **12.**

A partial elevational view of a sewing machine is shown in FIG. **3** and in FIG. **4** in which the darning and embroidery foot **10** is shown fastened to a presser bar **25,** by screw **24,** adjacent a needle bar **26** carrying a sewing needle **27.** In FIG. **3** the sewing needle **27** is shown in a position extending through the opening **18** in the darning foot **15** and through a needle hole **29** in a darning plate **30** of the sewing machine to cooperate with a looptaker (not shown) in the formation of a stitch. Referring to FIG. **4,** an arm **31** of a needle clamp **32** affixing the needle **27** to the needle bar **26,** impinges on the striker arm **17** of the darning foot **15** when the needle bar **26** reciprocates upwardly and the sewing needle **27** is out of the work fabric. The darning foot **15** is thereby elevated by the needle bar so that the work fabric may be moved by the artisan. The resilient beam flexes in the area of the elongated opening **24** to accommodate the relative motion between the darning member **12** and the clamping member **11.**

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

1. A unitary molded darning and embroidery attachment for a sewing machine having a presser bar and an endwise reciprocating needle bar comprising:

a. a first plastic member including a plastic darning foot and means integral with said darning foot for engagement with and actuation by said needle bar of said sewing machine over a portion of its endwise reciprocation,

b. a second plastic member, said second plastic member having means thereon for removably securing said second member to said presser bar of said sewing machine, and

c. resilient means integrally molded with and joining said first and second plastic members whereby said first plastic member may partake of limited motion relative to said second plastic member by reason of said engagement with and actuation by said needle bar over a portion of its endwise reciprocation.

2. A unitary molded darning and embroidery attachment as claimed in claim **1** wherein said resilient means includes a metallic strip, said strip having a reduced cross section area between and spaced from said first plastic member and said second plastic member whereby flexure of said resilient metallic strip is concentrated in said reduced cross section area and away from said first plastic member and said second plastic member.

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