

[54] **PRESSER FOOT**

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[58] **Field of Search** 112/60, 61, 235, 240

[56] **References Cited**

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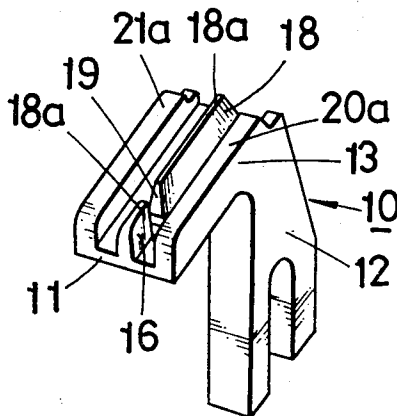
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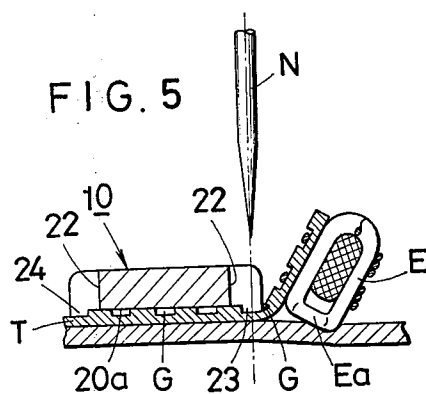
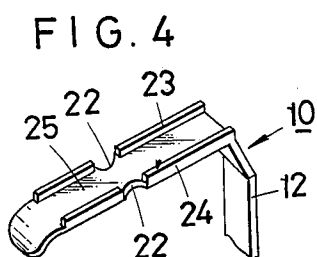
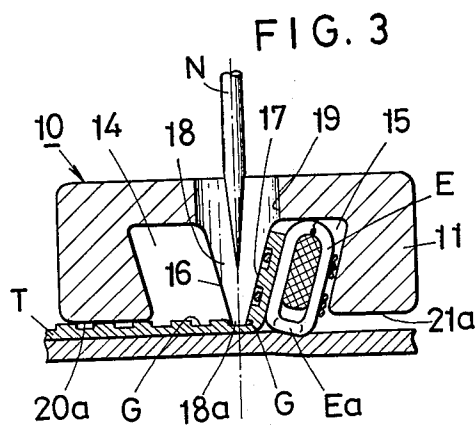
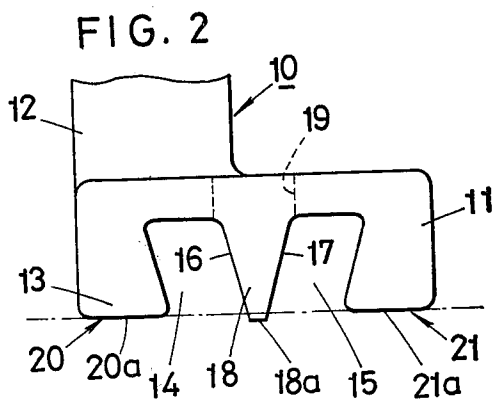
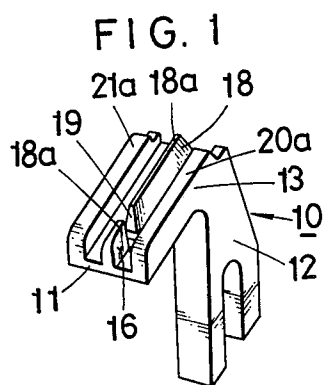
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[57] **ABSTRACT**

A presser foot for sewing slide fasteners into garments or the like is provided with a central partition dividing two parallel slots. The partition has a tapered tip end located outwardly beyond a flat bottom surface of the sole portion of the foot and a sewing needle guide bore extending out through the tapered end. This arrangement permits a slide fastener stringer particularly of a warp-knitted structure to be sewn properly into position on a garment on account of the fact that the tapered tip end of the partition comes into guiding engagement with an interwale groove along a longitudinal edge of the knitted carrier tape to which a row of fastener elements is secured.

3 Claims, 5 Drawing Figures





PRESSER FOOT

BACKGROUND OF THE INVENTION

This invention relates to improvements in a presser foot for a sewing machine, and has particular reference to a sewing machine foot for use in sewing a slide fastener to a garment or the like. More particularly, it is to a presser foot of the type that the invention is directed, which is suitable for sewing a concealed or hidden slide fastener having warp-knitted carrier tapes.

Various types of presser feet have been heretofore devised and used to this end, but in all cases it is essential that such feet be constructed so as to provide a line of stitching as close as possible to a row of interlocking fastener elements in order to conceal the fastener completely within a joint in the fabric of the garment simulating a real sewn seam when the joint is closed by a slider of the fastener. However, it has been found difficult with the prior-art presser foot devices to sew knitted fastener stringers neatly into proper position on an article. This is because there was no provision of means in the prior art to guide a knitted stringer tape along a correct path, or to keep to a proper width an interwale groove in the knitted tape adjacent the row of fastener elements along which the tape is to be sewn, with the results that the tape is liable to shift laterally out of place and the sewing needle fails to pass through the desired interwale groove but is misguided into other adjacent grooves of the knitted tape.

SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide an improved presser foot for sewing concealed slide fasteners into a garment or the like which is capable of providing a sewing seam correctly in and along a selected interwale groove in a warp-knitted carrier tape which lies immediately adjacent to a row of fastener elements, more particularly to the coupling heads of the same, whereby the fastener can be attached in proper position to the garment thus retaining its concealing effect.

With this object in view, the invention provides a presser foot for sewing a concealed slide fastener into a garment or the like, the fastener having two rows of interlocking fastener elements carried on respective carrier tapes of a warp-knitted structure, said presser foot comprising a foot having a sole portion disposed for guiding engagement with the web portion of the carrier tape and a partition having an opening for receiving a sewing machine needle, said partition having its bottom end located outwardly beyond the level of said sole portion and disposed for guiding engagement with an interwale groove closest the coupling heads of the fastener elements.

The features which are believed to be novel and characteristic of this invention are set forth in particular in the appended claims. The invention itself, however, will be better understood from the following detailed description taken in connection with the accompanying drawings which illustrate by way of example certain preferred embodiments and in which like reference characters designate like parts throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a presser foot shown in reversed disposition and constructed in accordance with the invention;

FIG. 2 is a front end elevation on enlarged scale of the presser foot of FIG. 1;

FIG. 3 is a cross sectional view illustrating the manner of stitching a concealed slide fastener to a garment fabric;

FIG. 4 is a perspective view of a modification in reversed disposition according to the invention; and

FIG. 5 is a cross sectional view of the same shown in operative condition.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings and FIGS. 1 and 2 in particular, there is shown a presser foot generally designated at 10 which is constructed in accordance with the teachings of this invention, and which comprises a foot position 11 and a shank 12 extending upwardly from the heel 13 of the foot 11. The shank 12 is adapted to connect the presser foot 10 to a presser bar of a sewing machine not shown.

The foot 11 is provided with a pair of laterally spaced slots 14 and 15 each of which serves as a guideway for one of the two rows of interlocking fastener elements E on respective carrier tape T and extends the full length of the foot portion 11. The slots 14 and 15 are slightly flared in opposite directions from a vertical plane through the longitudinal center axis of the foot portion 11, with the inner side walls 16 and 17 of the respective slots converging towards the bottom of the foot to form a downwardly tapered partition or ridge 18. A needle guide bore 19 extends vertically through the longitudinal center line of the foot 11, i.e. centrally through the partition 18 and is adapted to receive a sewing machine needle N as the latter makes a vertical sewing motion. The slots 14 and 15 serve to receive the row of interlocking elements E and hold them erect therein during the up and down movements of the sewing needle N as shown in FIG. 3.

By reason of the provision of the pair of slots 14, 15 the foot 11 is provided with separate side sole portions 20, 21 having flat bottom surfaces 20a, 21a, respectively which serve to guide and flat hold the web portion of the carrier tape T during the progressive sewing operation.

The partition 18 functions to prevent interference of the fastener elements E with the needle N during the sewing operation.

According to an important feature of the present invention, the partition 18 has its bottom tip end 18a located below or outwardly beyond the level of the flat bottom surfaces 20a, 21a of the sole portions 20, 21. The distance of projection of the tip end 18a of the partition 18 beyond the level of the bottom surfaces 20a, 21a of the sole portions 20, 21 corresponds substantially to the depth of an interwale groove G of the carrier tape T, and the width of the tip end 18a is substantially equal to the width of the interwale groove G. With this construction of the presser foot 10 according to the invention, when the sewing operation advances progressively in either direction, the partition 18 engages in and serves as a guideway for the particular interwale groove G, which lies immediately adjacent the

coupling heads *Ea* of the elements *E*. More specifically, the protruded tip end **18a** of the partition **18** functions to hold the said interwale groove *G* perfectly in alignment with the axis of vertical movement of the sewing needle *N* and keep the groove *G* clear for the passage of the needle *N* so that the latter can provide a sewn seam properly in and along the groove *G* of the tape *T*.

There is shown a modification in FIGS. 4 and 5 which is characterized by the provision of a semicircular needle receiving recess **22** in each of opposite side partitions **23** and **24** which projects beyond the level of tape guide surface **25** and which is dimensioned to fit into the groove *G* for purposes already stated in connection with the function of the partition **18**. Importantly, the position of the partition **23**, (**24**) registers with the vertical path of the sewing needle *N*, as seen, so that the needle *N* can pass through and along the particular groove *G* closest to the coupling heads *Ea* of the elements *E* while the said groove *G* is held spread open by the partition **23**, (**24**).

Having thus described the invention, it will be understood that various other modifications or changes may be made in the specific form and construction of the device illustrated, without departing from the scope of the appended claims.

What is claimed is:

1. A presser foot for sewing a concealed slide fastener into a garment or the like, the fastener having two rows of interlocking fastener elements carried on respective carrier tapes of a warp-knitted structure, said presser foot comprising a foot having a sole portion disposed for guiding engagement with the web portion of

the carrier tape and a partition having an opening for receiving a sewing machine needle, said partition having its bottom end located outwardly beyond the level of said sole portion and disposed for guiding engagement with an interwale groove closest the coupling heads of the fastener elements.

2. A presser foot for sewing a concealed slide fastener into a garment or the like, the fastener having two rows of interlocking elements carried on respective carrier tapes of a warp-knitted structure, said presser foot comprising a foot portion having a pair of laterally spaced slots each adapted as a guideway for one of the two rows of fastener elements, said slots being flared in opposite directions from a vertical plane through the longitudinal center axis of said foot portion and extending the full length of said foot, a shank extending upwardly from the heel of said foot and adapted to connect the presser foot to a sewing machine, sole portions formed on opposite sides of said slots and each having a flat bottom surface adapted as a guideway for the web portion of the carrier tape, a partition separating said slots and having a tapered tip end located outwardly beyond the level of the flat bottom surface of said sole portion, and a sewing needle guide bore extending vertically centrally through said partition.

3. A presser foot as defined in claim 2 wherein said tapered tip end projects beyond the flat bottom surface of said sole portion by a distance substantially corresponding to the depth of an interwale groove of the carrier tape and has a width substantially equal the width of said interwale groove.

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