

[54] **ZIPPER FOOT FOR USE WITH SEWING MACHINE**

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[57]

ABSTRACT

[30] **Foreign Application Priority Data**

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A supporting member is attached to an upright presser bar of a sewing machine. A zipper foot is attached to the supporting member so as to be releasable therefrom. The position of the zipper foot on the supporting member can be changed, in direction transversely of the upright presser bar, so as to adjust the zipper foot for different types of zippers to be sewn onto a garment or other article.

[56] **References Cited**

UNITED STATES PATENTS

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2 Claims, 6 Drawing Figures

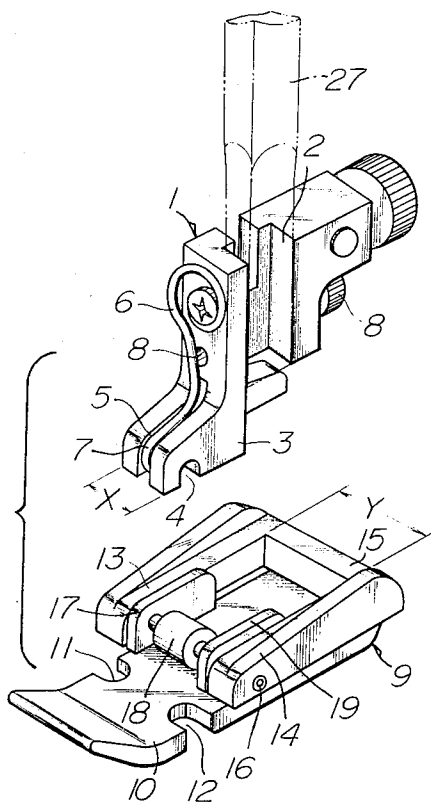


FIG. 2A

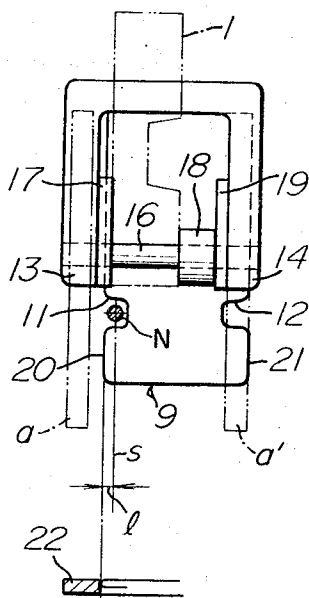


FIG. 2B

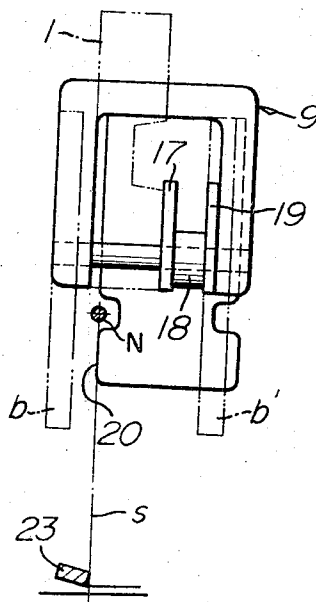


FIG. 2C

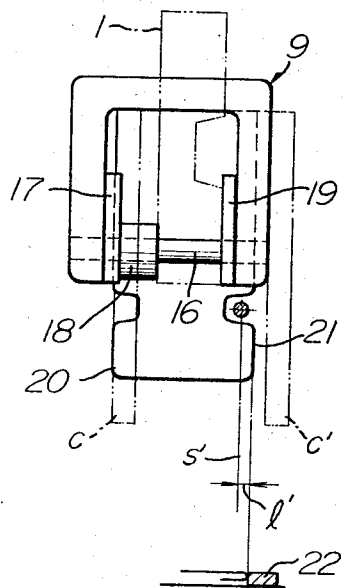
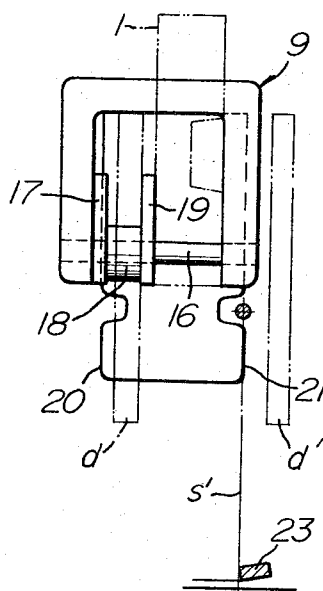


FIG. 2D



ZIPPER FOOT FOR USE WITH SEWING MACHINE

BACKGROUND OF THE INVENTION

The present invention relates to sewing machines in general, and more particularly to a zipper foot for use with sewing machines.

A zipper foot is a device which is secured to an upright presser bar of a sewing machine in the region of the needle or needles, and which serves to hold down a zipper as the same is being sewn onto a garment or other article.

Conventional zipper feet must be mounted on the presser bar every time a zipper is to be sewn on, and must thereafter be removed again because they interfere with normal sewing, i.e., with sewing which is not concerned with securing a zipper. Moreover, depending upon whether a normal zipper or one of the new concealed zippers is to be sewn on, different types of zipper feet must be used. It is evident that both of these features are hardly conducive to speedy sewing, and that an error in the selection of a particular type of zipper foot will result in improper sewing of the zipper which really would have required the other type of foot.

SUMMARY OF THE INVENTION

It is therefore a general object of the invention to overcome the disadvantages of the prior art.

More especially, it is an object of the invention to provide an improved zipper foot which is not possessed of these disadvantages.

Still more particularly, it is an object of the invention to provide such an improved zipper foot which need not be removed, even when no zipper is to be sewn in place.

An additional object of the invention is to provide such an improved zipper foot which can be used with all currently known types of zippers, whether they be of the concealed or the unconcealed type.

In keeping with these objects, and others which will become apparent hereafter, one feature of the invention resides in a combination comprising a supporting member adapted to be mounted on a presser bar of a sewing machine, a zipper foot, and connecting means adjustably connecting said zipper foot with said supporting member.

The present invention makes it possible to shift rapidly and simply from normal sewing to zipper sewing, and back, without requiring removal of the zipper foot during normal sewing or installing of the zipper foot for zipper sewing. All that is required is a simple, readily made adjustment on the zipper foot.

Moreover, the zipper foot can be readily and simply changed over from operation for sewing of conventional unconcealed zippers to the sewing of the new concealed zippers. No tools are required for this purpose, nor any particular skill.

The novel features which are considered as characteristic for the invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a perspective view, illustrating a device according to the present invention in partly disassembled condition;

FIGS. 2A-2D are respective diagrammatic top plan views of the device in FIG. 1, showing different adjusted positions of the device; and

FIG. 3 is a perspective view, showing a prior-art zipper foot.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For the sake of better juxtaposition, the conventional zipper foot shown in FIG. 3 will be discussed first. It will be seen that it has a supporting portion 24 to which a zipper foot 25 is secured. By means of a set screw 26, the device is secured to the upright presser bar (not shown) of a sewing machine.

This zipper foot is not adjustable to different types of zippers (e.g., concealed vs. unconcealed). Furthermore, it must be removed from the presser bar when normal sewing use is to commence, i.e., when no zipper is being sewn on, because the device interferes with the proper movement of the needle. Also, the set screw 26 permits only relatively inaccurate positioning of the foot on the presser bar; in this connection it is recalled here that improper positioning will cause unsatisfactory sewing results.

All of these problems are overcome by the device according to the present invention.

Referring first to FIG. 1, it will be seen that reference numeral 1 identifies a supporting member having a portion 2 by means of which it is mounted on a vertically oriented presser bar 27 of a sewing machine. No details of the sewing machine other than the presser bar 27 have been shown, because they are not needed for an understanding of the invention.

A lower free portion 3 of the supporting member 1 has a transverse width X and is formed in a downwardly directed surface with a groove 4 which extends in the direction of this width, i.e., transverse to the vertical orientation of the presser bar 27. This portion also has another groove 5 the lower end of which extends to the surface having the groove 4. A spring 6 is mounted on the supporting member 1 as shown and has a hook-shaped lower end portion lodged in the groove 5 and in part extending transversely of the groove 4 across the same. A pin 8 can be axially shifted (by exerting pressure upon its non-illustrated end) so as to press against the spring 6 and shift the lower end portion thereof in such a manner that it will no longer extend across the groove 4.

Reference numeral 9 identifies a zipper foot having a base plate 10. On an upper surface of the base plate 10 there is provided a frame 15 having two transversely spaced sidewalls 13 and 14. A shaft or pin 16 is mounted in these sidewalls and extends from one to the other thereof, as shown. The distance Y between the inner sides of the sidewalls 13 and 14 is substantially larger than the width X. A plurality of adjusting members, here the members 17, 18 and 19, are shiftably mounted on the shaft 16 which extends through appropriate holes provided in them. The combined thickness of the members 17-19, as seen in axial direction of the shaft 16, corresponds to the difference between the dimensions X and Y.

The zipper foot 9 is secured to the member 1 by having the groove 4 straddle the shaft 16, with the spring 6 retracted, and by thereafter permitting the hooked end portion of the spring to extend across the groove 4 so as to prevent movement of the shaft 16 out of the groove.

The connection between foot 9 and member 1 may be maintained at all times, except for brief adjusting periods, whether or not a zipper is to be sewn onto a garment or other article. It is merely necessary to change the position of foot 9 relative to member 1.

For basic needle (or seam) lines S and S', the foot 9 is so shifted (after first disconnecting it from member 1 and shifting members 17-19 appropriately), that the longitudinally extending edges or guides 20 and 21 of base plate 10, wherein the respective inwardly extending needle recesses 11, 12 are formed, are properly located, these guides being for right and left stitching in a zig-zag sewing machine.

FIGS. 2A and 2C show how the foot is arranged when an ordinary unconcealed zipper is to be stitched in place. FIGS. 2B and 2D show the same arrangement as adjusted for use when a concealed zipper is to be stitched in place. The shifting of the members 17-19 to obtain the desired positioning of the foot 9 is clearly visible from these Figures.

In FIGS. 2A and 2C, the basic needle lines passing through the needle N are inwardly spaced from the guides 20, 21 by the distance L or L', respectively, so as to stitch portions of material which are slightly spaced from the actual zipper mechanism 22. In FIGS. 2B and 2D, on the other hand, the basic needle lines S and S' coincide exactly with the guides 20, 21 so as to stitch portions of the zipper 23. The dotted lines a, b, c and d represent feed dogs, as do the dotted lines a', b', c' and d', the formed being located under the zipper foot 9 and the latter being located under the respective zipper.

Of course, if for any reason a disengagement of zipper foot 9 from member 1 is desired, for instance to permit connection of a different foot which might be required for a different sewing operation, then this can be readily and rapidly carried out in the manner described earlier.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of applications dif-

fering from the type described above.

While the invention has been illustrated and described as embodied in a zipper foot for use with zig-zag sewing machines, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims:

1. A zipper foot for use with sewing machines having a needle for sewing of material that is being fed in a longitudinal direction, and a supporting member provided with a zipper-foot retaining spring, said zipper foot comprising a base plate having a top face and a bottom face for contacting the material, a pair of opposite longitudinal edges extending in said direction and formed with respective inwardly extending needle recesses, and a pair of upstanding walls each projecting upwardly from said top face and being transversely spaced by a first width; a mounting pin extending transversely of said longitudinal edges from one to the other of said upstanding walls; and adjusting means axially shiftable on said mounting pin and having in axial direction of the same a second width smaller than said first width so that an axially extending portion of said mounting pin is always exposed for engagement with said supporting member and said retaining spring, said adjusting means being axially shiftable on said mounting pin between two first positions in each of which an imaginary line passing through said needle in said longitudinal direction intersects one of said needle recesses inwardly of the respectively associated edge, and two second positions in each of which said imaginary line coincides with one of said longitudinal edges.

2. A combination as defined in claim 1, and a presser bar having a vertical orientation.

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