

[54] **PRESSER FOOT WITH SIDEWAYS ADJUSTMENT**
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[22] Filed: **March 17, 1971**
[21] Appl. No.: **125,125**

Related U.S. Application Data

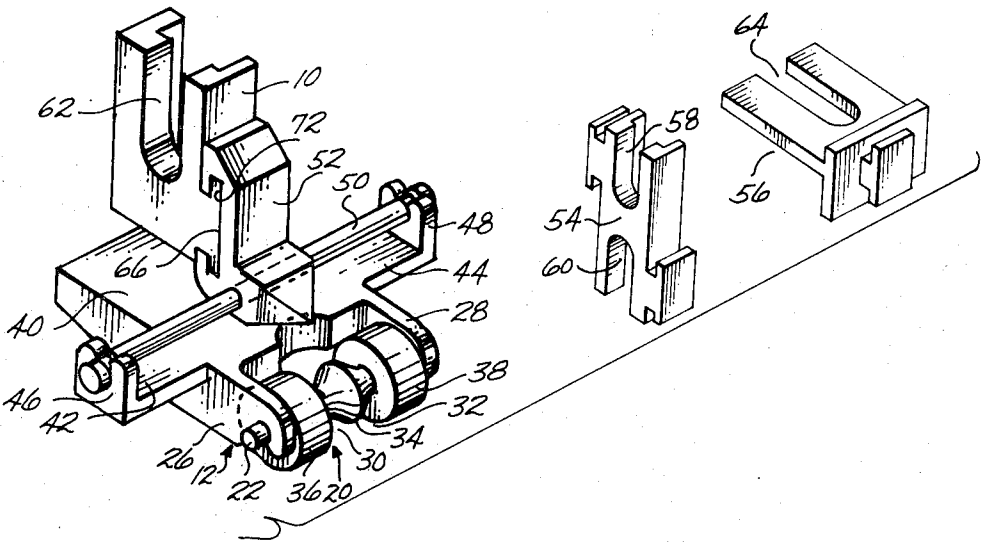
[60] Division of Ser. No. 869,836, Oct. 27, 1969, Pat. No. 3,618,547, which is a continuation-in-part of Ser. Nos. 764,453, Oct. 2, 1968, Pat. No. 3,511,201, and Ser. No. 764,518, Oct. 2, 1968, Pat. No. 3,511,200, each is a continuation-in-part of Ser. No. 501,066, Oct. 22, 1965, Pat. No. 3,349,736, which is a continuation-in-part of Ser. No. 475,486, July 28, 1965, Pat. No. 3,342,151.
[52] U.S. Cl.112/240
[51] Int. Cl.D05b 29/12
[58] Field of Search112/235, 240

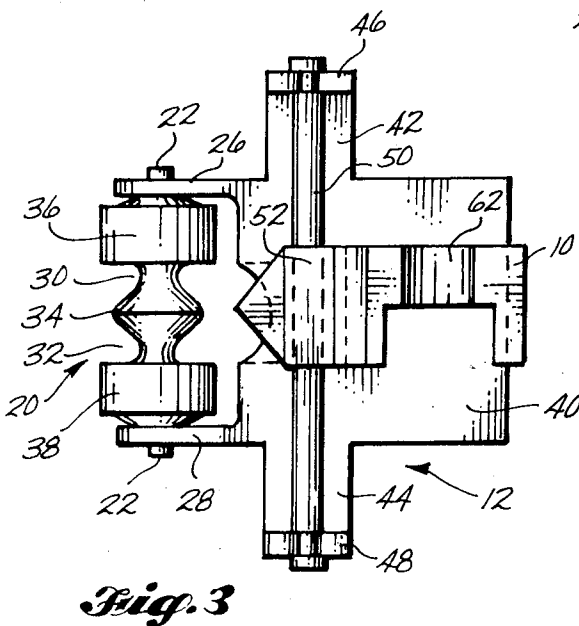
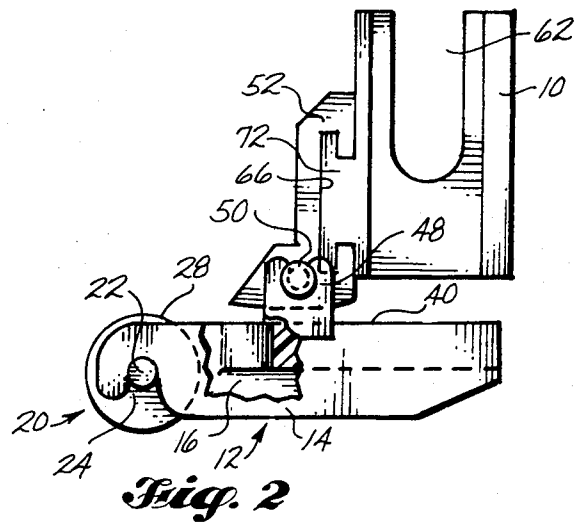
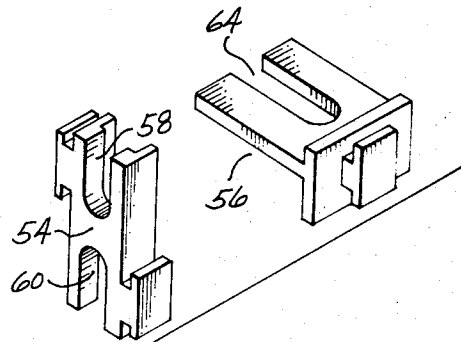
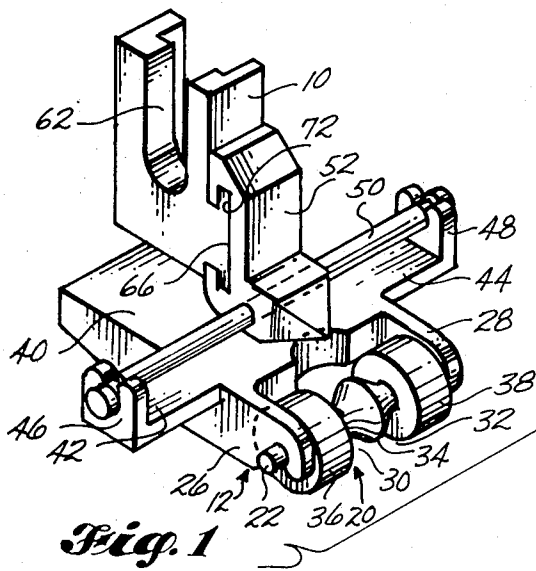
[56]	References Cited		
	UNITED STATES PATENTS		
3,433,192	3/1969	Pingitore et al.	112/235
2,513,343	7/1950	Maxson	112/235
3,511,200	5/1970	Howell	112/235
3,511,201	5/1970	Howell	112/240
3,618,547	11/1971	Howell	112/240

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[57] **ABSTRACT**
An elongated cylindrical rod is supported on an upper portion of a presser foot component. The rod extends through a transverse bore in a connector block. The connector block includes one component of a joint between it and a mounting shank. The mounting shank is adapted for connection to the presser bar of a sewing machine.

10 Claims, 4 Drawing Figures





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PRESSER FOOT WITH SIDEWAYS ADJUSTMENT**CROSS-REFERENCES TO RELATED APPLICATIONS**

This is a division of my copending application Ser. No. 869,836, entitled Zipper Foot Attachments, and filed on Oct. 27, 1969, as a continuation-in-part of my copending application Ser. No. 764,453, entitled Presser Foot Mounting, and filed Oct. 2, 1968. It is also a continuation-in-part of my copending application Ser. No. 764,518, entitled Presser Foot Assemblies and filed on Oct. 2, 1968.

U.S. Ser. Nos. 764,453 and 764,518 were both filed as continuation-in-part applications of my copending application Ser. No. 678,742, entitled Installation of Concealed Zippers and Presser Foot Attachments, filed Oct. 27, 1967, as a continuation-in-part of my then copending application 501,066, entitled Zipper Foot Attachment, filed Oct. 22, 1965, as a continuation-in-part of my earlier copending application Ser. No. 475,486, filed July 28, 1965 and entitled Universal Presser Foot Attachment.

Application 475,486 issued as U.S. Pat. No. 3,342,151 on Sept. 19, 1967. Application Ser. No. 501,066 issued as U.S. Pat. No. 3,349,736 on Oct. 31, 1967. Application Ser. No. 678,742 issued as U.S. Pat. No. 3,473,498 on Oct. 21, 1969. Application 764,453 issued as U.S. Pat. No. 3,511,201 on May 12, 1970. Application 764,518 issued as U.S. Pat. No. 3,511,200 on May 12, 1970. Application 869,836 issued as U.S. Pat. No. 3,618,547 on Nov. 9, 1971.

BACKGROUND OF THE INVENTION**1. Field of the Invention**

The present invention relates to presser foot assemblies for sewing machines, and more particularly to such assemblies for use in installing zippers or other types of elongated articles which need guiding during their installation, e.g. cording, piping, etc. Some of the features of the invention specifically relate to presser foot assemblies for use in installing invisible or concealed zippers.

2. Description of the Prior Art

Known laterally adjustable presser foot assemblies are of two types. In the first type the adjustable connection comprises a member having a laterally elongated slot which receives the shank portion of the clamp screw. Examples of foot assemblies of this type are shown by Burgess, U.S. Pat. No. 3,024,751 and Micale, U.S. Pat. No. 3,294,048. The second type includes a slide joint having only two positions of use. The slidable member is retained in each of these positions by the pressure of a spring biased ball detent. This type of foot assembly is shown by Yoshida, U.S. Pat. No. 3,098,460. Other known forms of presser feet are disclosed in Smallbone, U.S. Pat. No. 1,930,628, and in Dixon et al., U.S. Pat. No. 2,909,136.

SUMMARY OF THE INVENTION

The invention relates to improved ways of adjusting a foot component relative to its mounting shank, and to mounting means permitting the foot component to "pitch" in response to the passage of materials of unequal thickness below it.

These and other features of the invention are exemplified by the embodiments described below with reference to the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a pictorial view of a form of presser foot attachment according to the invention, including a showing of two substitute mounting shanks for use in connecting the foot assembly to other types of sewing machines;

FIG. 2 is a side elevational view of the foot component of FIG. 1, with an intermediate part of the foot component shown in longitudinal section;

FIG. 3 is a top plan view of the zipper foot assembly of FIGS. 1 and 2; and

FIG. 4 is a fragmentary side elevational view of the high bar mounting shank secured to the mounting block.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring specifically to FIG. 1, the zipper foot assembly is shown to comprise a mounting shank 10 and a foot component 12. Foot component 12 includes a pair of bottom runners 14 which extend in parallelism on opposite sides of the zipper chain path through the foot component 12. Between the runners 14 the zipper chain path exists as a longitudinal bottom groove 16. Such groove 16 is of such a height and width that its bounding surfaces neither contact nor interfere with the zipper tooth chain.

The forward portion of the zipper chain path is defined by a peripheral groove formed in a roller 20. Roller 20 includes live axles 22 at its opposite ends. These axles 22 are snap fitted into downwardly opening bearing sockets 24 (FIG. 2) formed in the forward end portions of the side walls 26, 28 of the foot component 12. These bearing sockets 24 have main portions which are slightly larger in diameter than the axles 22 and entrance portions which are narrower than the diameter of the axles 22. As a result, the axles 22 have to be snap fitted into the sockets 24. This construction both makes it easier to construct and fabricate the foot assembly, and makes it possible for the user to readily replace the roller 20 with a different type of roller, e.g. a roller for installing a different type of zipper.

Roller 20 includes a M-shaped peripheral groove providing two guide avenues 30, 32 on opposite sides of a divider 34. Such roller 20 is designed to be used for installing a flat tooth metal or a continuous filament plastic zipper.

Roller 20 also includes presser surfaces 36, 38 on the opposite sides of the guide means 30, 32, 34.

The exact configuration of the guide means 30, 32, 34 will vary in accordance with the type of zipper or other article for which the foot is adapted.

Roller 20 is mounted for free rotation about an axis which is substantially transversely related to the sewing path. Each guide grooves 30, 32 allows free passage of its zipper tooth chain through the foot component 12. Grooves 30, 32 also correctly orient the zipper tooth chains relative to the needle.

The entrance avenues 30, 32 of the foot component 18 are configured to roll the zipper teeth contacted by the side surfaces thereof over into a nearly supine posi-

tion, with the inner side portions of the teeth closely adjacent the fabric to which the zipper tape is being sewn. Placement of the teeth in a nearly supine position requires a rolling of the teeth from their natural attitude into the nearly supine position. It is desirable to establish a stitch line which is quite close to the portions of the teeth bounding the needle. Thus, this criteria is used for designing the entrance portions 30, 32 of the zipper teeth avenues.

The foot component 12 includes a top panel 40. Top panel 40 includes a pair of oppositely projecting extensions 42, 44 having upturned end portions 46, 48 which are parallel to each other. The ears 46, 48 include recesses for receiving reduced diameter end portions of a smooth support rod 50 shown to be snap fitted into the recesses.

A connector block 52 is mounted on the rod 50 for longitudinal travel therealong and lateral travel relative to the body. Connector block 52 includes a transverse bore through which the rod 50 extends.

Block 52 is formed to include a joint component, illustrated in the form of a laterally directed T-shaped tension 66. The mounting shank 54 is provided with a pair of selectively usable, complementary mortises 68, 70; mounting shank 10 includes a single complementary mortise 72 and shank 56 also includes a single complementary mortise 74.

As best shown by FIG. 2, the bottom surface of block 52 is spaced above the top panel 40 of body 12. The bottom surface of mounting shank 10 is also spaced above top panel 40. This arrangement permits a limited amount of pivotal movement of the rod 50 within its supports upon pitching movement of the foot component 12, caused by changes in the thickness of material below the foot component 12.

The high bar mounting shank 54 is constructed so that it can be turned end-for-end and be used for mounting the foot component 12 onto a slanted presser bar of a slant needle type sewing machine. Mounting shank 10 is a low bar type mounting shank and mounting shank 56 is an end screw type mounting shank. The mounting shank 54 is provided with clamp screw receiving slots 58, 60 at its opposite ends; shank 10 is provided with a single mounting screw receiving slot 62; and shank 56 includes a single mounting screw receiving slot 64. Mounting shank 10 is to be used with the low bar type presser bar, such as shown by FIG. 7 of my U.S. Pat. No. 3,342,515. Shank 56 is to be used with the end screw type presser bar, such as shown in FIG. 9 of my U.S. Pat. No. 3,342,151.

The mounting block 52 frictionally grips the rod 50, but relative axial and pivotal movement can still occur between the rod 50 and its end supports in response to forces which exceed the frictional forces.

What is claimed is:

1. For use with a sewing machine equipped with a presser bar, a reciprocating needle and a material advancing mechanism, a presser foot assembly comprising:

a foot component including downwardly directed presser surface means;

a transverse rod member mounted atop said foot component, said rod member being relatively smooth surfaced and substantially circular in cross

section; and mounting means removably connectible to said presser bar, and said mounting means frictionally gripping said transverse rod member but permitting longitudinal gripping said transverse rod member but permitting longitudinal sliding movement of the rod member and said foot component relative to said mounting means, to provide for lateral adjustment of the foot component relative to the mounting means and the presser bar, and said transverse rod member mounting said foot component for limited pivotal movement within a vertical plane, so that the foot component is free to pitch slightly in response to variations in material thickness below it.

2. A presser foot assembly according to claim 1, wherein said foot component includes means forming a guide avenue for an invisible zipper chain shaped to roll said invisible zipper chain from its normal attitude offset upwardly from its mounting tape into an outwardly leaning attitude in region of the needle.

3. A presser foot assembly according to claim 1, herein said mounting means includes a connector block which frictionally grips said transverse rod member, mounting shank means, means for removably connecting said mounting shank means to said connector block, and means for removably connecting said mounting shank means to said presser bar.

4. A presser foot assembly according to claim 3, wherein said connector block comprises one component of a two component joint between it and the mounting shank means, and said mounting shank means comprises a plurality of different, selectively usable mounting shank members, each having an identical joint component constituting the second component of said joint, and each said mounting shank member being adapted for connection to a different type of presser bar.

5. A presser foot assembly according to claim 1, wherein said foot component includes a pair of opposite side extensions, each including an upwardly extending ear at the outer end thereof, with said ears serving as end supports for the transverse rod member.

6. A presser foot assembly according to claim 5, wherein said transverse rod member is rotatably supported by said ears.

7. A presser foot assembly according to claim 6, wherein each ear includes an upwardly open recess having an entrance portion narrower than the diameter of the rod member at such recess, and the rod member is snap fitted into said recess.

8. A presser foot assembly according to claim 3, wherein said foot component includes a pair of opposite side extensions, each including an upwardly extending ear at the outer end thereof, with said ears serving as end supports for the transverse rod member.

9. A presser foot assembly according to claim 8, wherein said transverse rod member is rotatably supported by said ears.

10. A presser foot assembly according to claim 9, wherein each ear includes an upwardly open recess having an entrance portion narrower than the diameter of the rod member at such recess, and the rod member is snap fitted into said recess.

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