Aug. 4, 1964 KAICHI YAMADA 3,143,094

PRESSURE FOOT FOR SEWING MACHINE

Filed Oct. 12, 1962 2 Sheets-Sheet 1

FIG. 1

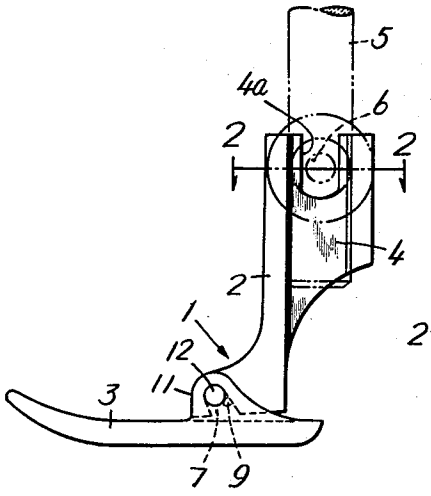


FIG. 2

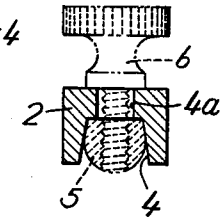


FIG. 3

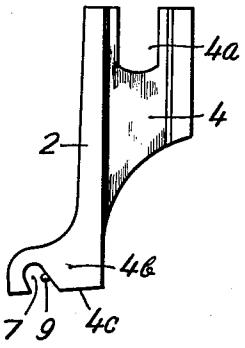


FIG. 4

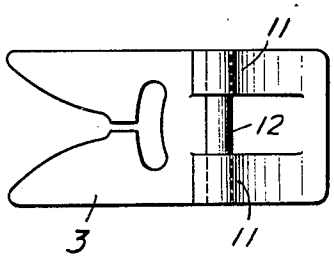


FIG. 5

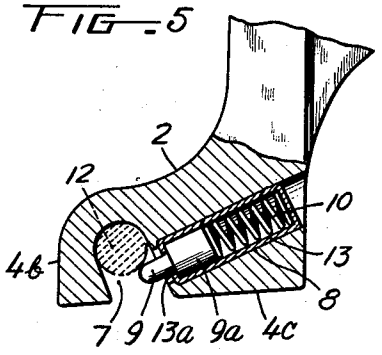
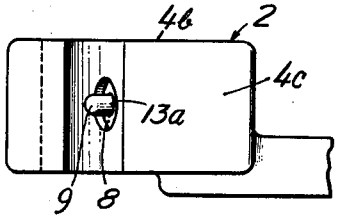


FIG. 6



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Aug. 4, 1964 KAICHI YAMADA 3,143,094

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Filed Oct. 12, 1962 2 Sheets-Sheet 2

FIG. 7

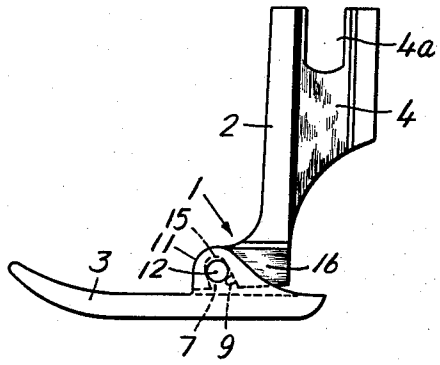


FIG. 8

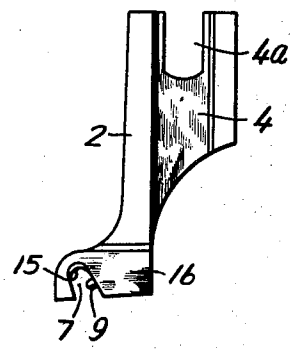


FIG. 9

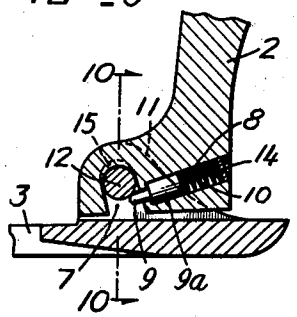


FIG. 11

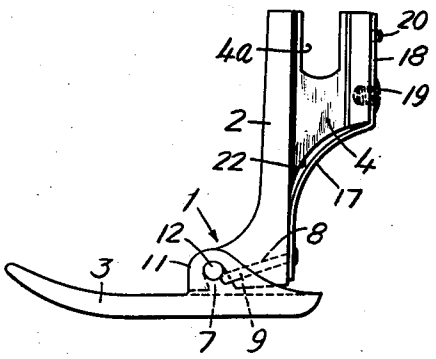


FIG. 10

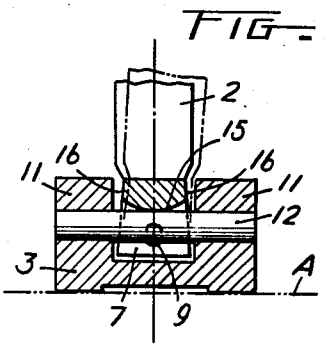


FIG. 13

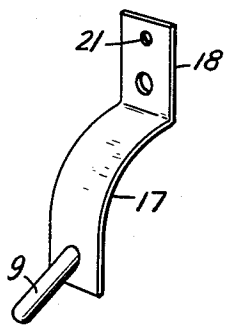
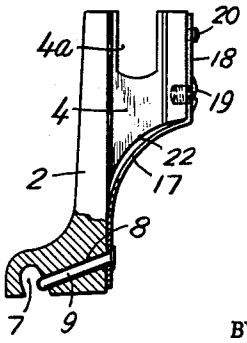


FIG. 12



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PRESSURE FOOT FOR SEWING MACHINE

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Claims priority, application Japan June 12, 1962
2 Claims. (Cl. 112—235)

The present invention is concerned with an improvement in pressure feet for sewing machines.

Sewing machines as conventionally known generally include a pressure foot bar to which a pressure foot is detachably connected. For each type of stitching to be carried out by the sewing machine a corresponding type of pressure foot is connected to the pressure foot bar. For example there is a different pressure foot for a straight stitch or for hemming or the like and it is neccessary to change the pressure feet in accordance with the intended type of stitch to be performed by detaching the pressure foot on the sewing machine and replacing with the correct type. This necessitates producing a complete pressure foot for each type of stitch and loosening and fastening a set screw on the sewing machine for changing each pressure foot which is relatively expensive and troublesome.

It is accordingly an object of the present invention to provide an improved pressure foot which has a shank detachably connectable to a sewing machine pressure foot bar and a pressure shoe quickly and easily detachable and attachable to the shank so that only the pressure shoe is produced and used for each type of stitching and the same shank can be used with all of the various pressure shoes.

Further objects of the invention will be in part obvious and in part pointed out in the following detailed description of the accompanying drawings, in which;

FIG. 1 is a side elevation of a pressure foot according to the present invention which is shown attached to a conventional sewing machine pressure foot bar.

FIG. 2 is a cross-sectional view taken on line 2—2 of FIG. 1.

FIG. 3 is a side elevation of a shank forming part of the present pressure foot.

FIG. 4 is a plan view of the shoe also forming a part of the present pressure foot.

FIG. 5 is an enlarged detailed view partly in section of the shank and shoe axle.

FIG. 6 is a bottom view of the shank.

FIG. 7 is a side elevation of a modified form of pressure foot connected to a sewing machine pressure foot bar.

FIG. 8 is a side elevation of the shank of said modified pressure foot.

FIG. 9 is an enlarged cross-sectional partial view of the modified pressure foot.

FIG. 10 is a cross-sectional view taken on line 10—10 of FIG. 9.

FIG. 11 is a side elevation of a second modification of the present pressure foot connected to a sewing machine pressure foot bar.

FIG. 12 is a side elevation partially in section of the shank of said second modification of pressure foot.

And FIG. 13 is an enlarged perspective view of the spring forming part of said pressure foot of FIG. 11.

Referring now more in detail to the accompanying drawings in which like and corresponding parts are designated by similar reference characters, numeral 1 generally designates the present pressure foot. The form of said pressure foot as shown in FIGS. 1 to 6, inclusive includes a shank 2 and a pressure shoe 3 having a configuration for use with the type of stitching with which it is to

used. Said shank has a longitudinal side groove 4 in the upper end portion thereof and a slot 4*a* in said end for receiving the conventional pressure foot bar 5 of a sewing machine and the connecting set screw 6 thereof, respectively as shown in FIG. 1 whereby said shank detachably extends from said pressure foot bar 5.

Said shank has a laterally extending base 4*b* with a flat bottom 4*c*. A slot 7 extends inwardly of said base on a slant from said bottom 4*c* giving said base a hook shaped appearance.

A bore 8 extends through said base opening on one side of said slot 7. A pin 9 connected to a piston 9*a* is caused to extend into slot 7 due to the action of spring 10 bearing against piston 9*a* and against the bottom of a cylindrical guide 13 fixedly mounted in bore 8. Said guide 13 has a restricted opening 13*a* smaller than piston 9*a* through which pin 9 slideably extends.

Pressure shoe 3 has a pair of parallel spaced apart upright ears formed as a part thereof with axel 12 fixedly connected to and extending between said ears.

To connect a pressure shoe 3 to shank 2 it is only necessary to push axle 12 against pin 9 pushing said pin inwardly of guide 13 compressing spring 10. As soon as axle 12 passes said pin spring 10 pushes pin 9 outwardly into slot 7 below axle 12 retaining said axle therein until said axle is deliberately pulled against pin 9 again pushing said pin in guide 13 until the axle 12 passes said pin. A snap fastening of shoe to shank is thus obtained while the shoe is pivotally connected to said shank and extends laterally of the sewing machine pressure foot bar 5.

The modified form of pressure foot shown in FIGS. 7 to 10 inclusive is similar to that previously described except that in lieu of guide 13, piston 9 and spring 10 are positioned in cylindrical bore 8 and retained by a disc 14 fixedly mounted in and extending across bore 8 with one end of spring 10 bearing against said disc.

Also the base 15 of slot 7 has a convex configuration while the sides 16 of shank 2 taper inwardly from bottom 4*c* towards one another. Thus axle 12 can rock on base 15 allowing said pressure shoe 3 to remain flat on cloth A being sewn or horizontal even when said shank or the pressure foot bar 5 are not positioned exactly vertical.

The second modified form of pressure foot shown in FIGS. 11 to 13, inclusive is also similar to the previous forms except that pin 9 is elongated and cylindrical sliding through bore 8. In lieu of spring 10, a curved leaf spring 17 of a resilient metal has one end of pin 9 fixedly connected thereto and has a flat end portion 18 fixedly retained by a screw or drive pin 19 in threaded engagement with shank 2. Numeral 20 denotes a pin which projects from said shank 2 and is engaged with a hole 21 formed in said spring 17 to fix the relative position of said shank 2 and said spring 17. Said shank has a curved lower side 22 along which spring 17 extends.

Again pushing or pulling axle 12 against the end of pin 9 within slot 7 pushes said pin against spring 17 while said spring in turn will push pin 9 into slot 7 as soon as said axle passes for connecting or disconnecting shoe 3 quickly and easily from shank 2.

It is to be appreciated that pressure shoes 3 of other configurations than that shown can be used. Thus by selecting the proper shoe 3 for the stitch to be made it can be attached to shank 2 without removing the shank from bar 5 and the shoes can be interchanged as desired.

The present invention is capable of considerable modification and such changes thereto as come within the scope of the appended claims are deemed a part of the invention.

I claim:

1. A pressure foot for sewing machines having a pres-

sure foot bar comprising a shank detachably connectable to the sewing machine pressure foot bar, said shank having a bottom slot and a bore extending to one side of said slot, a pin slideably mounted in said bore, resilient means tending to retain said pin extending from said bore into said slot, a pressure shoe, an axle mounted on said pressure shoe insertable in said slot for being detachably retained by said pin whereby said pressure shoe is detachably connected to said shank and said shank bottom slot being defined at the inner end thereof by a convex wall against which said axle abuts when in said slot to permit a rocking of said shoe relative to said shank when in use.

2. A pressure foot for sewing machines having a pressure foot bar comprising a shank detachably connectable to the sewing machine pressure foot bar, said shank having a bottom slot and a bore extending through said shank to and having one end opening on one side of said slot, a pin slideably extending through said bore, a leaf fixedly connected at one end and extending along said shank across said bore at the opposite end thereof to said slot,

said leaf spring being fixedly connected to said pin and tending to retain said pin extending into said slot, a pressure shoe, an axle mounted on said pressure shoe insertable in said slot for being detachably retained by pin whereby said pressure shoe is detachably connected to said shank and said shank bottom slot being defined at the inner end thereof by a convex wall against which said axle abuts when in said slot to permit a rocking of said shoe relative to said shank when in use.

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