

May 23, 1961

S. M. RHODES

2,985,126

PRESSURE FOOT DEVICE

Filed Sept. 22, 1958

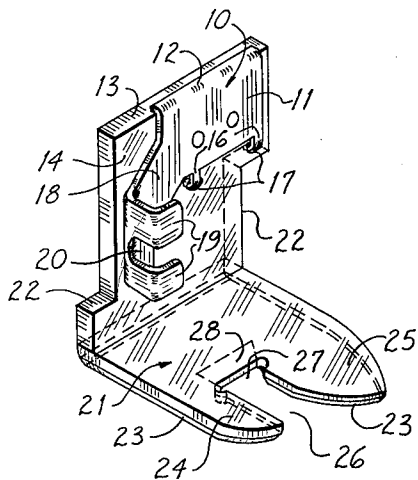


Fig. 1

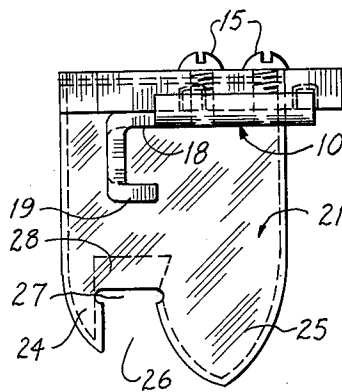


Fig. 2

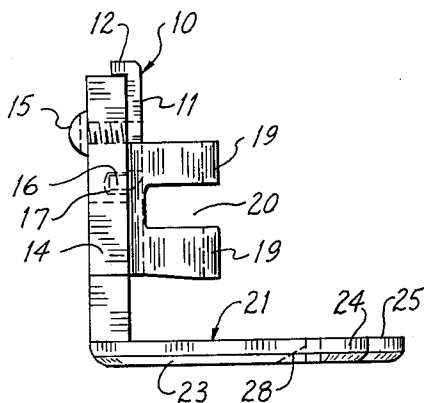


Fig. 3

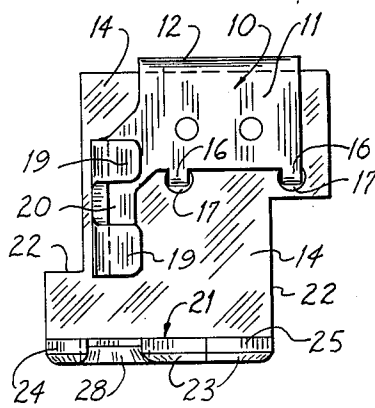


Fig. 4

Solomon M. Rhodes
INVENTOR.

BY R.T. Sperry
ATTORNEY

1

2,985,126

PRESSURE FOOT DEVICE

Solomon M. Rhodes, 820 S. Rome, Tampa, Fla.

Filed Sept. 22, 1958, Ser. No. 762,325

1 Claim. (Cl. 112—235)

This invention relates to pressure feet for sewing machines and is particularly concerned with a foot through which the operation of the needle may be observed and through which the path of the thread stitched by the needle may be noted.

While the present invention may be generally useful in various types of sewing machines and in various stitching operations performed thereby, the invention in its present form is more particularly designed for use in the embroidering of names, letters, designs and the like with a zig-zag type of sewing machine. At the present time embroidery by use of sewing machines is by way of a complicated manual operation in which the pressure foot is removed from the machine and the fabric is stretched across an embroidery ring. With the fabric so stretched the operator guides the material under the zig-zag needle with the fingers closely adjacent to the needle, not only to accurately guide the material but to restrain the fabric from vertical movement with the needle. This operation is not only time consuming and hence costly, but there is great danger of the operator's finger being punctured by the needle since it is required that the fingers be so closely adjacent to the zone of operation of the needle. Furthermore, this operation requires considerable training and skill in order to perform an accurate design within a reasonable period of time. It is also to be noted that in the securing of the fabric in the ring, difficulties are experienced, time is lost in the operation and the rings are easily damaged. Furthermore, in this type of operation which is the one defined in the literature distributed by the various sewing machine companies, it is particularly difficult to embroider a pocket or a like area where only one piece of fabric of a pair of overlaid fabrics is desired to be embroidered.

The discarding of the pressure foot for embroidery operations and the retention of the material by a hoop in lieu of retention by the pressure foot was dictated primarily by the fact that the conventional pressure foot precluded observation of the operation of the zig-zag needle and the observation of the embroidery pattern as it was being accomplished. The present invention seeks to avoid the difficulties of the present ring type embroidery procedure by provision of a transparent or translucent pressure foot through which the needle movement and embroidery design may be observed and which thus avoids the necessity of the use of a ring or hoop and the close proximity of the operator's fingers to the field of needle movement. In carrying out the invention the transparent foot is constructed and arranged of such dimension as to bear against a wider area of fabric than is normally contacted by the conventional pressure foot and the opening through which the needle passes is formed as a recess in the front edge of the pressure foot to enhance observation. The pressure foot material adjacent to such opening and at the edge is appropriately beveled or rounded to provide ease of movement of the material thereunder.

The objects, features and advantages of the present invention will be more apparent from a consideration of the

2

following specifications taken in conjunction with the accompanying drawings, in which;

Figure 1 is a perspective view of a transparent pressure foot formed in accordance with the present invention,

5 Figure 2 is a top plan view of the foot of Figure 1,

Figure 3 is a side elevation of the foot,

Figure 4 is a front elevation of the same.

The pressure foot of the present invention is adapted to be mounted in any conventional manner on the usual vertical pressure bar of any type of sewing machine. It will therefore of course be understood that the particular mounting structure here shown is presented merely by way of illustration and is subject to variation to accommodate individual structural arrangements of various types of machines. The mounting means here presented is in the form of a furcated metal bracket 10 formed with a transversely extending flat body portion 11 having an upper longitudinal flange 12 adapted to fit over and engage the upper edge 13 of a vertical body 14 of the foot proper. The bracket 10 is firmly secured to the vertical body 14 as by screws 15. The lower longitudinal edge of the bracket is formed with inwardly turned detents 16 adapted to be seated in recesses 17 of the vertical body. Thus the flange 12, detents 17 and the screws 15 provide for a firm and permanent engagement of the bracket with the vertical body 14 of the pressure foot. For engagement with the usual vertical pressure bar of a conventional sewing machine the bracket is formed with a lateral extension 18 provided with inwardly turned fingers 19 forming a furcation defining an opening 20 which may receive the usual securing screw. Since the invention is not concerned with the vertical pressure bar and the securing screw both of which are well known to those skilled in the art, these parts are not here illustrated. It will of course be understood that the bracket of the type here shown, or one so modified as to accommodate variations of pressure bars and securing screws construction, may be moulded into the plastic of the foot itself or otherwise permanently and rigidly secured.

As hereinbefore referred to, the pressure foot of the present invention includes a transparent or translucent glass, "Plexiglas" brand of polystyrene resin, plastic, or other light-transmitting fabric-contacting portion. As here shown such portion is formed by a horizontal member or foot portion 21 which extends in a plane normal to the vertical or back portion 14 of the body. Preferably the horizontal member 21 is formed integrally with the vertical body portion 14, both being made as an integral plastic and transparent unit. As here shown, the body portion 14 and the foot portion 21 are arranged at right angles and each is formed of a solid piece of flat, smooth transparent plastic material. The side of the body 14 is here shown as cut away as at 22 to conform with its attachment to a conventional vertical pressure bar.

The foot member 21 is shown as provided with beveled edges 23 to facilitate ease of movement over the fabric to be embroidered. In the use of the present pressure foot, it is suggested that the normal foot pressure be somewhat reduced in order to facilitate the embroidering operation. The member 21 is here shown as designed with parallel forwardly projecting fingers 24 and 25 respectively between which an opening 26 leads to a transverse needle movement area 27. Adjacent to the needle movement area the under surface of the foot material is beveled as at 28 not only to insure smooth passage of the material under the foot but to enhance the view of the action of the needle and the path of the thread. The fingers 24 and 25 are preferably formed with inwardly curving front edges, the inner face of the finger 24 being generally straight while the inner face of the finger 25 curves toward the needle opening. This configuration of the fabric engaging foot has been found eminently success-

ful in the use of the foot for embroidery purposes and to provide a clear unobstructed vision of the needle operation and the thread pattern. However, it will be understood that the invention is not limited nor confined to the specific configuration here shown by way of illustration. It may be noted, however, that the transverse width of the foot is substantially greater than the area usually provided for foot contact with material, hence the foot is effective in holding the material against the vertical movement with the needle as well as providing substantial distance between the operator's fingers and the area of needle movement.

From the foregoing it will be seen that the present invention provides a transparent or translucent pressure foot of substantial area by which the operator may accomplish embroidery operations without requiring the use of a ring and without danger of piercing the finger by the needle. The term embroidery as here used is intended as general in scope to include darning operations, chenille ornamentation and thus a wide variety of sewing machine stitchings.

One of the important factors of the particular design here shown of the fabric contacting member is the fact that such member extends reasonably beneath the projected area of the pressure bar. This is accomplished by the right angular relation between the attached vertical body 14 and the horizontal member 21. Such rearward extension for contact beyond the normal position of the foot increases the hold-down efficiency while the transparency insures a clear view of the design for a substantial distance from the needle. It will of course be understood

that in the practice of the invention numerous changes, modifications and the full use of equivalents may be resorted to without departing from the spirit or scope of the invention as outlined in the appended claim.

5 What I claim is:

A pressure foot device comprising a body having right-
angularly related back and foot portions formed of trans-
parent plastic material, means carried by the upper part of
said back portion for attaching the device to the pressure
10 foot bar of a sewing machine, said foot portion comprising
a broad plate member having substantially coextensive
smooth parallel plane top and bottom surfaces and having
its rear edge joined to the back portion in a vertex below
said pressure foot bar attachment means and extending
15 the full width of said foot portion and of the lower edge
of said back portion, and said foot portion having a
transversely elongated opening forming a needle move-
ment area and being open to the front edge of the foot
portion by a cutout slot substantially as wide as the trans-
20 verse length of said needle movement area.

References Cited in the file of this patent

UNITED STATES PATENTS

25	2,369,118	Cumfer	Feb. 13, 1945
	2,570,464	Loew	Oct. 9, 1951
	2,699,743	Hill	Jan. 18, 1955
	2,814,266	Marshall	Nov. 26, 1957

FOREIGN PATENTS

30	654,308	Germany	Dec. 16, 1937
----	---------	---------	---------------