

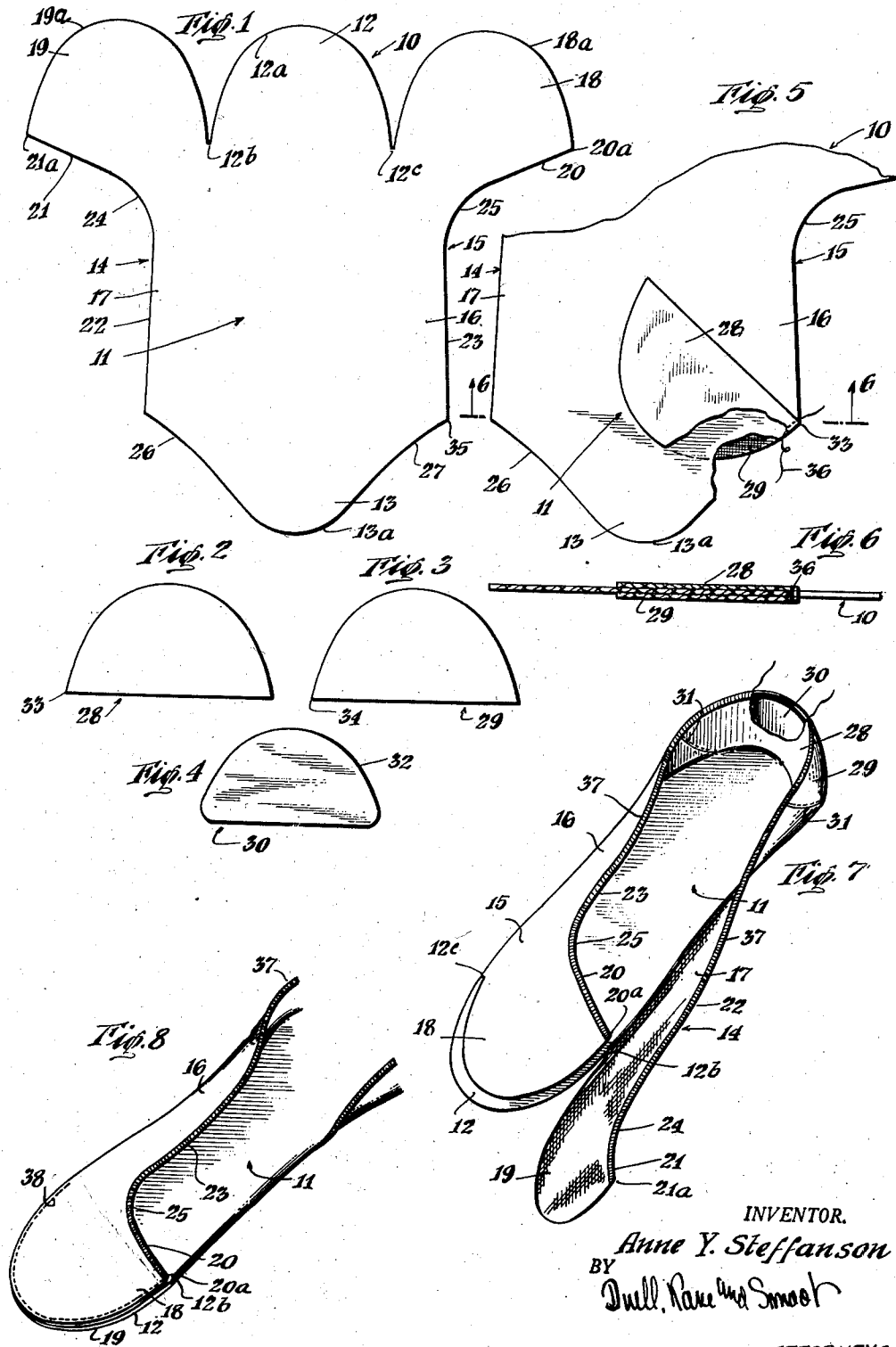
May 22, 1945.

A. Y. STEFFANSON, NOW BY JUDICIAL DECREE A. M. YANDELL

2,376,398

STOCKING FOOT
Filed April 10, 1943

2 Sheets-Sheet 1



INVENTOR.

Anne Y. Steffanson
BY Dull, Rame and Smoot

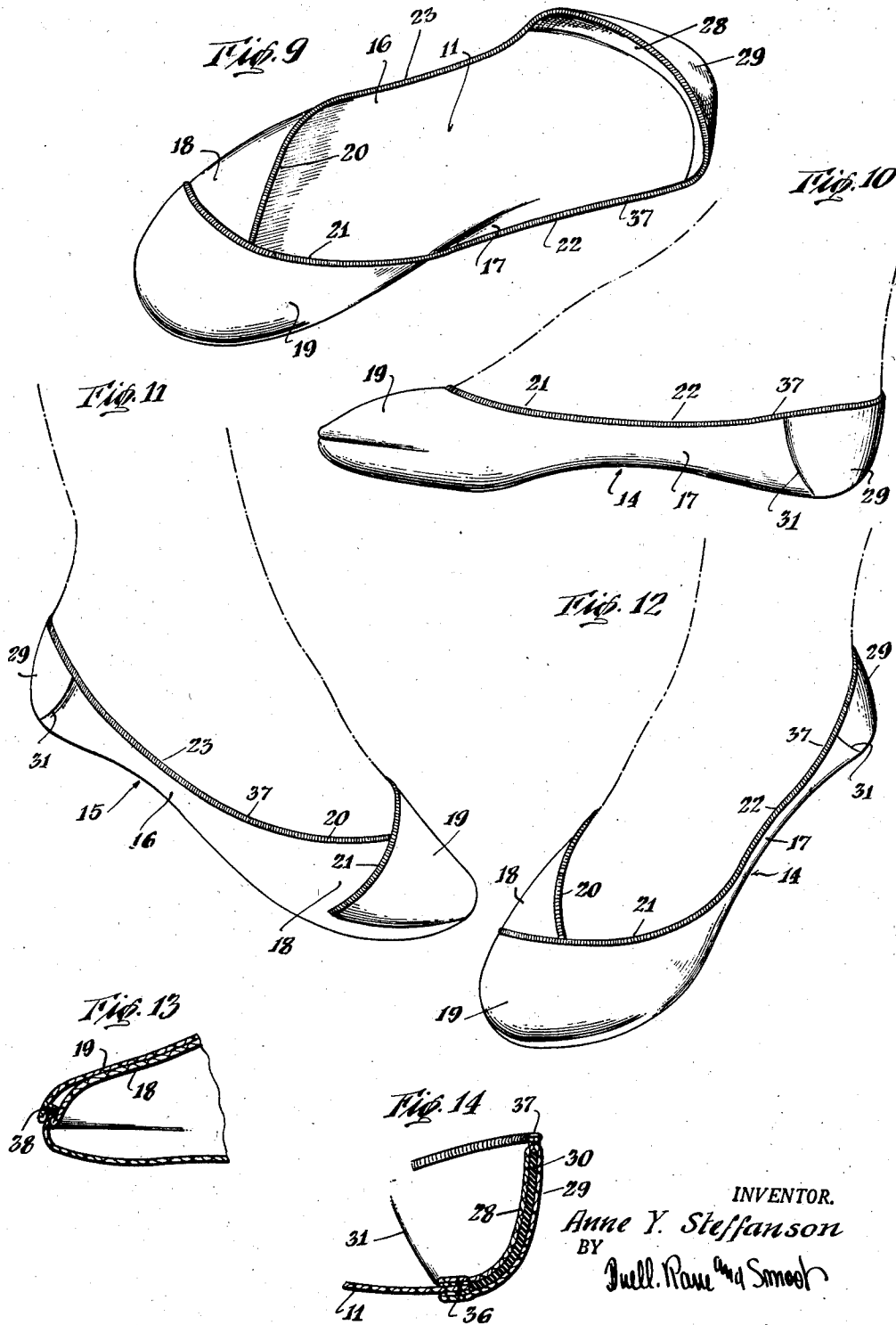
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UNITED STATES PATENT OFFICE

2,376,398

STOCKING FOOT

Anne Y. Steffanson, New York, N. Y., now by
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Application April 10, 1943, Serial No. 482,562

1 Claim. (Cl. 36—10)

This invention relates generally to a structure in the field of hosiery best described as a stocking foot.

The designing and manufacturing of a suitable stocking foot of this type presents many difficulties. In the first place, it is highly desirable to have such a stocking foot cut sufficiently low so that it will not appear above the shoe line at any place. Since women's shoes are, in general, cut with varying shaped low lines, especially across the instep, the provision of a sufficiently low cut and properly shaped stocking foot to be concealed by the average women's shoe presents a very difficult problem.

The low cut of such stocking feet presents further difficulties in that, as a result thereof, they have a tendency to fall down or "ride off" the heel of the wearer. Attempts to prevent them from falling or riding down by means of a tightening around the foot opening have generally resulted in a structure which cuts the wearer across the instep. Additionally, such structures have generally required the use of rubber or elastic, which products may at times be difficult to obtain.

The main object of the present invention is to provide a concealed type of stocking foot which meets all of the desirable characteristics of such footwear. It is thus an object of my invention to provide a new type of concealed stocking foot which is extremely low cut and preferably does not show above the shoe line, which has the ability to stay on without sliding off the heel, and which achieves this lowness and ability to stay on without sacrificing comfortable fit and without resulting in any cutting of the instep or other part of the foot.

Another object is the provision of such a structure without the use of elastic, rubber or other special tightening means.

A further object is to form a novel toe structure providing a tensioning pull to support the sides and heel of the stocking foot on the wearer, at the same time retaining sufficient flexibility to avoid cutting or binding.

It is a further object of my invention to provide such a structure which is completely reversible and which may be used on either side with both sides presenting the same finished appearance.

A still further object is the provision of a novel heel structure which provides for a molded heel fit either from a single thickness of material or as a double thickness forming an envelope to receive a floating heel supporter.

A further object is to provide a novel method

of manufacturing stocking feet, especially of the concealed type, such method of manufacturing being highly efficient and requiring a minimum of manufacturing time.

The achievement of these and further objects will be apparent upon a study of the specification and accompanying drawings, in which:

Fig. 1 is a plan view of a blank cut according to the predetermined pattern and which forms the main body portion of my new stocking foot;

Fig. 2 is a plan view of one piece of material which has been cut to form a heel;

Fig. 3 is a plan view of another piece of material cut to shape and used to form the heel envelope;

Fig. 4 is a plan view of the floating heel supporter;

Fig. 5 is a plan view partly in section and showing the manner in which the heel structure is formed;

Fig. 6 is a cross sectional view taken along the lines 6—6 of Fig. 5;

Fig. 7 is a perspective view of the stocking foot during the course of manufacturing and showing a portion of the heel broken away;

Fig. 8 is a further perspective view during manufacture;

Fig. 9 is a perspective view of the stocking foot in completed form;

Fig. 10 is a side view of the foot showing the stocking foot in wearing position;

Fig. 11 is a perspective view of a foot showing the stocking foot in position;

Fig. 12 is a further perspective view of the structure shown in Fig. 11;

Fig. 13 is a cross sectional view of the toe and showing the concealed stitch; and

Fig. 14 is a cross sectional view of the heel showing the concealed heel stitch and heel supporter.

Referring now to the drawings, I shall describe one embodiment of my invention, but I desire it understood that the description is merely illustrative to one application thereof and is not to be taken in a limiting sense.

Fig. 1 shows a blank 10 cut to form the sole, sides and toe portion of the stocking foot. This blank is preferably cut as one piece and comprises a central section 11, generally forming the sole and provided at both the front and rear ends with substantially curved or rounded extensions 12 and 13 having approximately semi-circular curved outer edges 12a and 13a. Disposed to either side of the central section are the side and toe-forming portions generally re-

ferred to as 14 and 15. The central sections 16 and 17 are of narrow width, substantially rectangular, and form the sides of the stocking foot. Each of the sides 16 and 17 are formed at their forward ends with approximately semi-circular extensions 18 and 19 substantially similar in shape and size to the extension 12 of the central portion 11 and having substantially semi-circular outer edges 18a and 19a. The toe extensions 18 and 19 are substantially wider than the sides 16 and 17 and are joined to the edges thereof by the inside edges, sometimes referred to as the toe or instep cross lines, designated respectively as 20 and 21. These instep cross lines are cut substantially transverse to the longitudinal foot line. By the use of the term "substantially transverse," it is to be understood that I mean a line which is placed sufficiently athwart or across the foot to act, when the stocking is on the wearer, as an upward pull on the sides and so that the sides do not fall down.

The positioning of this line in a direction across the width of the foot provides a smooth and comfortable fit as well as the necessary cross tensioning and resiliency to keep the narrow sides 16 and 17 and the heel from slipping or riding down.

In preferred form, the lines 18a and 20 and the lines 19a and 21 meet at respective points 20a and 21a. These points are selected so that when side and toe portions 14 and 15 are folded over for stitching, point 20a approximately coincides with point 12b, and point 21a coincides with 12c. It is also observed that the edges 22 and 23 are joined respectively to the edges 21 and 20 by curved edges 24 and 25.

The rear edges of the sides 14 and 15 are preferably formed with a slight curve shown respectively at 26 and 27, which curve, when the stocking is worn, is in slightly downwardly and rearwardly extending position.

Figs. 2 and 3 represent pieces of fabric cut to form the heel portion. As will be seen, both of the portions shown are similar in shape and are approximately half-moons or semi-circular. If desired, only a single thickness heel may be used, in which event, only one heel portion will be used, for example, 28 of Fig. 2. This shaped heel gives the desirable molded fit. However, in the preferred structure, the double on envelope type of heel is used. In that event, one of these portions, for example, 28 will form the inside of the heel while the other, 29, will form the outside of the heel.

Preferably, in forming these stocking feet, the usual flexible stocking materials such as cotton, rayon, silk or substitutes therefor are used. These materials are generally woven or knitted and have a certain degree of inherent elasticity and are extremely soft and flexible and do not support themselves in any rigid position.

Therefore, in carrying out my invention, it may in some instances be desirable to use a supporter or stiffener to impart rigidity to the heel structure. Accordingly, in Fig. 4 I have shown one desirable form of such supporter whose shape is similar to that of the portions forming the heel shown in Figs. 2 and 3 but which is slightly smaller. This supporter which is adapted to fit in the heel envelope and to be retained therebetween without being secured to the fabric (i. e. in floating position) may be formed from canvas, paper, plastics of various types or other suitable stiff material, it being desirable, however, that it be washable.

The method of assembling of the various parts into the finished footwear and the sequence of operations is preferably as hereinafter described.

First, referring to Fig. 5, which illustrates the preferred envelope heel structure, the two heel portions 28 and 29 are held in position one to each side of the blank 10 with their respective corners 33 and 34 in contact with the corner 35. Thereafter, by means of the stitching 36, the two heel portions are sewed entirely along their circular periphery to the back edge of the two side portions 14 and 15, as well as the sole portion 11. Then the two heel portions are folded back on themselves, thus leaving the stitching 36 concealed and providing a heel affixed to the sides by arcuate downwardly rearwardly slanting lines 31. At this time and if the heel supporter 30 is to be used, it is inserted between the two heel portions 28 and 29 and permitted to float between them. Then, by means of a suitable stitch 37 and while the stocking foot is still in substantially a flat position, the edge which will form the top of the foot is stitched. As will be noticed, this closes the opening between the two heel portions 28 and 29 through which the supporter had been inserted, leaving it, as shown in Fig. 7, in floating position between the two heel portions. The stitch 37 is preferably one which appears the same on both sides of the fabric. This is highly desirable in that the present structure is made reversible.

The next operation consists in sewing the toe structure. To do this, the stocking foot is first folded as shown in Fig. 7. With respect to the sole or central section 11, one side and toe portion, for example, 15 is folded over the top of it, while the other side and toe portion, namely 14, is folded under it. In this position and as shown in Fig. 8, by a suitable stitch 38 the rounded peripheral edges of the toe portions 18 and 19 are sewn to the rounded peripheral edge of the sole portion 12. Thereafter, by reversing the toe portion 14, that is, turning it up over the portion 19 the structure shown in Fig. 9 is completed. It will be observed that by this means of stitching, both the toe and the heel stitches are invisible. This structure makes the stocking foot completely reversible so that if turned inside out when taken off, it is still in position to be immediately put on again. Also reversibility is highly desirable from the point of view of wear, inasmuch as holes on one side of the stocking foot do not mean that it has to be discarded, but merely that it can be reversed and used on the other side. This concealed stitch and practically invisible seam makes these structures highly desirable in connection with open toe shoes. Also, the seams occur only at points where the seaming causes the least discomfort.

Reference to Figs. 11 and 12 will show the smooth fit which is achieved by means of the present structure without any strains or irregularities being caused. In Fig. 11 it will be noted that due to the manner in which line 21 was positioned in the initial cutting operation, a substantially transverse pull across the foot has been achieved in the finished product. The same is true, of course, of the underlying toe section of Fig. 11 which is likewise substantially transverse across the foot. This substantially transverse instep cross line makes for an extremely smooth fitting and comfortable stocking foot and, as is well shown in Fig. 12, serves to hold the side and heel 14 up on the foot.

The double heel and toe effect is well shown in

the cross sections of Figs. 13 and 14. It will be noticed therein that the double or envelope type of heel provides a natural means for securing and retaining the floating heel supporter. This supporter, due to the fact that it is covered with a soft material causes no friction or rubbing against the skin of the wearer and thus a desirable feature is achieved without in the slightest sacrificing the comfort and fit of the hosiery. The double toe and heel thus furnish added protection and softness where most needed.

The direction of crossing of instep cross lines is preferably planned so that the under cross line is positioned nearest to the inside of the foot and is thus in closest proximity to the big toe. In this connection, for example, Figs. 11 and 12 both show right feet.

It is thus to be seen that by the use of my original construction and without the use of elastic or rubber, I have provided a structure having a definite resiliency and cling to the foot without any cutting or binding over the instep or over any other part of the foot. The design of the toe structure provides for flexibility and close fit, permitting a low cut such that the stocking foot

can be designed so as not to show over the top of the very low shoes worn by most women. In conjunction therewith and by use of the curved heel, a rounded and sculptured fit conforming to the foot of the wearer is achieved. In combination with the toe structure, there is thereby provided an unusual stocking foot overcoming all of the objections of the prior known products.

While the structure is desired to be used as a unit, it should be pointed out that certain features of my invention may be utilized with or without certain other features and no limitations are intended except as required by the appended claim.

I claim:

A reversible stocking foot comprising a sole having a substantially semicircular toe end, a heel, and sides each having substantially similar semicircular forward toe extensions, said latter extensions mutually crossing and each being secured to said toe end along substantially the full periphery thereof by means of a stitch lying between said crossed extensions.

ANNE Y. STEFFANSON.