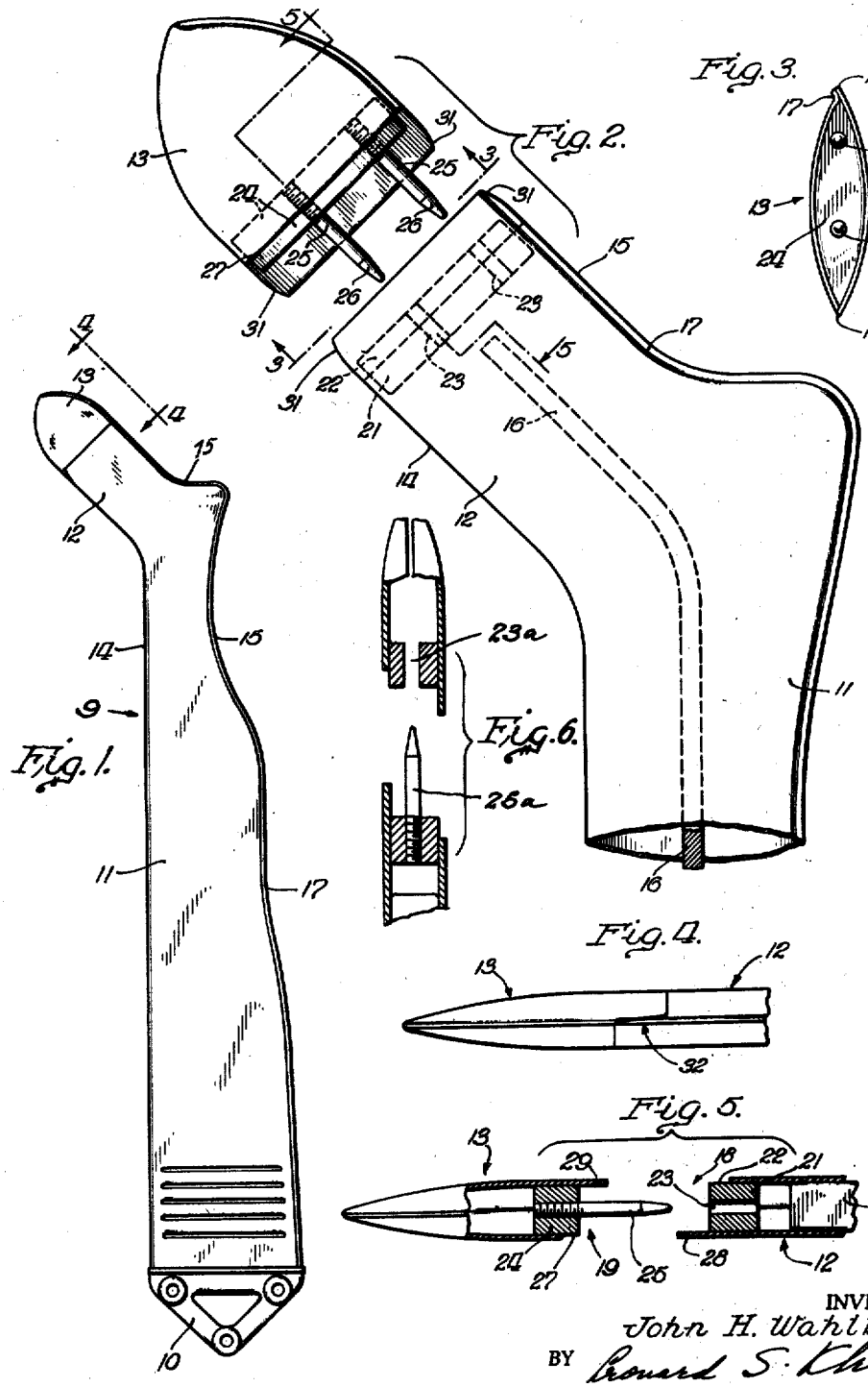
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GARMENT FORM

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GARMENT FORM

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This invention relates to a garment form and particularly to a form having interchangeable attachable and detachable portions to vary the contour thereof. It has more particular reference to a stocking form having interchangeable toe portions to vary the foot length to accommodate stockings of different foot sizes.

At the present time there are available on the market garment forms comprised of sheets of metal cut to the contour of the garment to be accommodated and assembled in pairs to comprise a structure having a substantially oval cross-section and crease producing edges. Said edges are joined by welding, brazing or any other commonly known expedient and a base member is provided for mounting the form. Frequently, especially in the case of ladies' hose, the dimensions of the leg and foot, other than foot length, remain the same for all nominal sizes of stockings so that it becomes necessary to use either a different form for each foot length or to provide the same with removable toe portions of various lengths, which are interchangeably detachable with respect to the form to result in a longer or shorter foot portion therefor.

I am aware that forms are available comprised of sheet metal formed as above described, as well as those constructed from a relatively thick single sheet of metal, and provided with interchangeable toe portions, but in those the toe portion forms a simple butt joint with the remainder of the form, thereby leaving an interstice between the two joined portions into which loose threads on the inside of the stocking, or the stitches themselves, can easily become snagged. Accordingly, if this should occur the stocking is rejected entirely as waste, or can be sold only at a substantially reduced price as an "irregular."

Furthermore, in the case of interchangeable toe forms intended to be used for a preboarding or equivalent setting operation on hosiery knitted of yarns comprised of synthetic yarns, as for example, synthetic linear condensation polyamides, commonly known as nylon, any clip or fastening means employed to connect the toe portion with the form proper and which may project above the normal surface of the form will, under the conditions of heat and moisture encountered in such setting operations, mold undesirable formations in the stocking and unfavorably affect their saleability. Moreover, it is recognized that nylon has a decidedly greater propensity to snag than has natural silk, rayons or other known fibres used in knitted articles, so that the snagging hazard alluded to in the foregoing paragraph now takes on even greater significance.

It is, therefore, the primary object of this invention to provide in a form of the class described interchangeable contour-varying members adapted to meet with the remainder of the form in such relation that no interstices likely to present a snagging hazard to the goods are formed at the junction.

It is another object of this invention to provide in a form of the class described a contour-varying member which will mate with the form proper to result in a smooth, flush surface over the entire working area of the form.

In the types of cap-like toes presently available for sheet metal forms, it is difficult to maintain the alinement of the toe and foot portion edgewise or flatwise inasmuch as the curved inner surface of the toe is adapted to fit over a substantially corresponding curved projection on the foot portion and no guide pins or equivalent aligning means are provided. As a practical matter it is difficult to fabricate such a form with accurately engaging curved surfaces, particularly because forming dies are too expensive to permit their use for the multitudinous shapes demanded by the trade. Hence when wear occurs during use, the toe becomes loose and misaligned with danger of snagging. In the case of forms made from a single sheet of metal, most frequently aluminum, the soft engaging surfaces become worn during use with the same shortcoming just described.

Accordingly, it is a further object of this invention to provide a form of the type referred to in which provision is made for initial accurate alignment of the toe portion with the foot portion, and for maintenance of said alignment substantially over the entire life of the equipment; and in the event normal slight wear occurs, which is desired to be remedied, renewed aligning means can be quickly and cheaply installed, and the form rendered as accurate as when new.

It is an additional object of this invention to provide a garment form including interchangeable contour-varying members, which is simple to manufacture, rapidly interchangeable, and comprising a rigid, unitary structure when the member is assembled with the form proper.

In the drawing:

Figure 1 shows a toe assembled with the form proper;

Figure 2 is an enlarged view of a portion of the form extending from the ankle through the foot

and showing the toe disengaged from the form proper;

Figure 3 is a view on the line 3—3 of Figure 2;

Figure 4 is a view on the line 4—4 of Figure 1;

Figure 5 is a partial cross section on the line 5—5 of Figure 2; and

Figure 6 shows an alternative form of the interengaging elements of Figure 5.

In the following description, the invention will be described with reference to a stocking form not adapted to be heated internally, as for example, a form used for a preboarding or equivalent setting operation, or generally, a form adapted to accommodate a stocking for treatment by a medium applied exteriorly. However, as will be alluded to hereinafter, the invention is equally applicable to a form adapted to receive a heating medium interiorly. Nor is the disclosure to be understood as being limited to interchangeable toe portions as such, as it will be obvious that the invention is equally applicable where other parts of the form contour are desired to be modified by interchangeable members. Moreover, the description is not to be construed as limited to a form to accommodate stockings, since the invention, in its essentials, is applicable to forms for other garments and arranged for contour-changing.

Referring to Figure 1, 9 represents the form proper comprising a mounting base 10, a leg portion 11, a foot portion 12, and a detachable toe portion 13. The sides of the body of the form may be constructed from sheet metal cut to the desired contour and formed by dies or otherwise to the curve indicated in Figure 3, and joined at the edges 14 and 15 by welding, brazing, soldering, or any other suitable means, to yield the substantially oval cross-section there shown. If desired, a rib 16 may be provided substantially centrally and longitudinally of the leg portion 11 and foot portion 12, to add rigidity and provide a fulcrum for facilitating assembly of the sides of the form in their arcuate relation by bending them thereover if necessary.

In the case of a stocking form it is preferred to provide, along the rear edge 15, a groove 17 (Figure 3) to receive the seam of the stocking and preserve proper alignment of the same with respect to the form as treatment proceeds. Said groove may be formed by rollers or a cutter as is usual in the art, and is continued through the toe portion, as shown in Figures 1 and 2.

As clearly shown in Figures 2 and 5, the rear half of the foot portion 12 across the face thereof is shorter than the front half, as indicated at 18, and in the toe 13 the front half across its face is shorter than the rear half, as indicated at 19, for a purpose to be described. Located in the open extremity formed by the curved sides of the foot portion 12 is a substantially oval solid insert 21 having curved parallel sides snugly fitting between the front and rear halves of the said foot portion, the said insert being lodged therein for slightly over half its thickness, to leave a projecting edge 22. Then, by means of spot welding, or any other suitable joining medium, the insert 21 is permanently joined with the curved sides of the foot portion 12. Insert 21 is provided with a pair of circular holes 23 therethrough, preferably located on its central axis.

The sides of the toe portion 13 are arcuately formed to match the curvature of the sides of the foot portion 12, and there is united therewith an insert 24 of the same shape as the insert 21, but provided, preferably on its central axis, with a pair of cylindrical dowels 25 threadedly engaged with the insert 24, adapted to mate with the holes 23, and terminating in a tapered and rounded tip 26 to facilitate entry of said dowels into said holes.

If desired, the dowels 25 and holes 23 may be reversed, as illustrated in Figure 6, wherein 23a represents the holes included in the insert of the toe element and 25a represents the dowels included in the insert of the foot portion.

It is preferred to fabricate the form and its component parts, including the detachable toes and inserts 21 and 24, of stainless steel, Monel metal, or some equivalent material having hardness and freedom from corrosion and rust, so that the form may have long life under the conditions of heat and moisture encountered with this type of apparatus; and to provide a garment contacting surface that may be given a permanent high polish to obviate the possibility of damage to the fabric.

During fabrication jigs are used to locate the holes 23 accurately with respect to the edges 14 and 15 and rear and front faces of the foot portion 12, and the dowels 25 accurately with respect to the same edges and the rear and front faces of the form as continued into the toe 13, so that upon engagement of the dowels 25 with the holes 23 perfect alignment of the edges and faces of the toe and foot portion will result (Figure 1). To provide frictional engagement and obviate accidental disengagement of the dowels 25 from holes 23, the said dowels may be sprung slightly by pressure of the fingers, causing a minute misalignment thereof and a pinching action between the dowels 25 and holes 23, but not so severe that the toe can not readily be removed manually.

Although the dowels 25 and the member 21 are made of stainless steel having a relatively high degree of hardness, some minute wear may be expected over a long period of time, especially if the toes are interchanged at frequent intervals. In the event such wear can not be accommodated by springing the dowels 25 as aforesaid, it is a simple matter to enlarge slightly the holes 23 and to exchange the dowels 25 for substitute dowels having an increased diameter to fit in the newly formed holes. Thus the toe and form are restored to the accurate alignment prevailing when the same was first manufactured.

The corners of the overhanging extremities 28 and 29 respectively of the front face of the foot portion 12 and of the rear face of the several interchangeable toes 13 are preferably slightly rounded as shown at 31 (Figure 2) to avoid any possibility of the fabric snagging thereon. The offset relationship of the front and rear joints between the foot portion 12 and toe portions 13 result in a so-called "jointless" edge as clearly depicted in Figure 4 and designated by the numeral 32. In this manner a straight butt joint having the evils referred to hereinbefore is eliminated and there are no interstices left in which the stocking fabric may become lodged and snagged. Inasmuch as the tension of the fabric is greatest at the relatively sharp edges 14 and 15 of the form, any butt joint at that region is to be avoided since the fabric will most easily enter the crevice so formed. In the construction shown in Figure 4, the fabric can slide smoothly over the edges, as the joint is broken along the edge rather than through it.

The exposed portions 22 and 27 of the inserts 21 and 24 respectively serve to support the overhanging ends 29 and 28 of the rear face of the

toe 13 and front face of the foot portion 12 so that these relatively thin members may not become damaged during use.

If it is desired to apply the invention to a form arranged to be heated internally, the insert 21 may be provided with holes 23 drilled only part way through so that the interior of the form 9 is completely sealed for circulation of a heating medium through a suitable base having inlet and outlet connections, as commonly known in the art. Accordingly, the dowels 25 would be foreshortened to take into the blind holes 23. Under this alternative, heating of the toe would take place through the metallic contacting areas of the foot portion and toe.

It will be apprehended that the basic improvements of this invention are applicable to a form comprised of a solid sheet of metal relatively thin in cross section, or of substantially oval cross section and arranged for either internal or external application of a heating medium. In this event if the form is made of relatively soft metal, the holes 23 would be formed by the insertion of hollow bushings in the base metal, said bushings being of relatively greater hardness than the base metal. In connection therewith hard dowels would be inserted in the toe portion so that the evils of having inter-engaged portions of the softer metal will be obviated.

It will be understood that a plurality of toes is furnished for each form proper and that those not in use are stored on a convenient rack. Moreover, it will be apprehended that other zones of the form may be arranged for contour changing, as for example, an interchangeable calf and knee portion for changing a form from one for accommodating regular ladies' stockings to one for ladies' outsize stockings.

I claim:

1. A hollow garment form comprising a body formed of side members joined at the margin thereof to form crease-producing edges except for a substantially blunt body portion adapted to receive a contour-changing member, said portion constituted by an extension of one side member beyond the other and a rigid insert in said blunt body portion; a plurality of holes in said insert; an interchangeable contour-changing member adapted to mate with said blunt body portion comprised of side members formed with one side member thereof extending beyond the other oppositely to the offset sides of the mating blunt body portion and forming a flush garment receiving surface therewith; said contour-changing member being provided with an individual rigid insert having dowels therein to engage said holes.

2. A hollow hosiery form comprising a body including a leg and foot portion comprised of side members joined at the margin thereof to form crease-producing edges, except that said foot portion terminates in a substantially blunt toe receiving portion constituted by an extension of one side member beyond the other and a rigid insert in said foot portion; a plurality of holes in said insert parallel to the axis of the foot portion; and an interchangeable toe portion for said form comprised of side members joined at the margin thereof to form crease-producing edges except where said toe portion terminates in a blunt foot-engaging portion, one side member extending beyond the other oppositely to the offset sides of said foot portion and forming a flush surface therewith; said toe portion being provided at its blunt end with an individual rigid insert having dowels therein to engage said holes.

3. A hosiery structure as in claim 1 in which said first mentioned insert protrudes from said blunt body portion to support the face of the contour-changing member juxtaposed thereto, and said second mentioned insert protrudes from said contour-changing member to support the face of the blunt body portion juxtaposed thereto.

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