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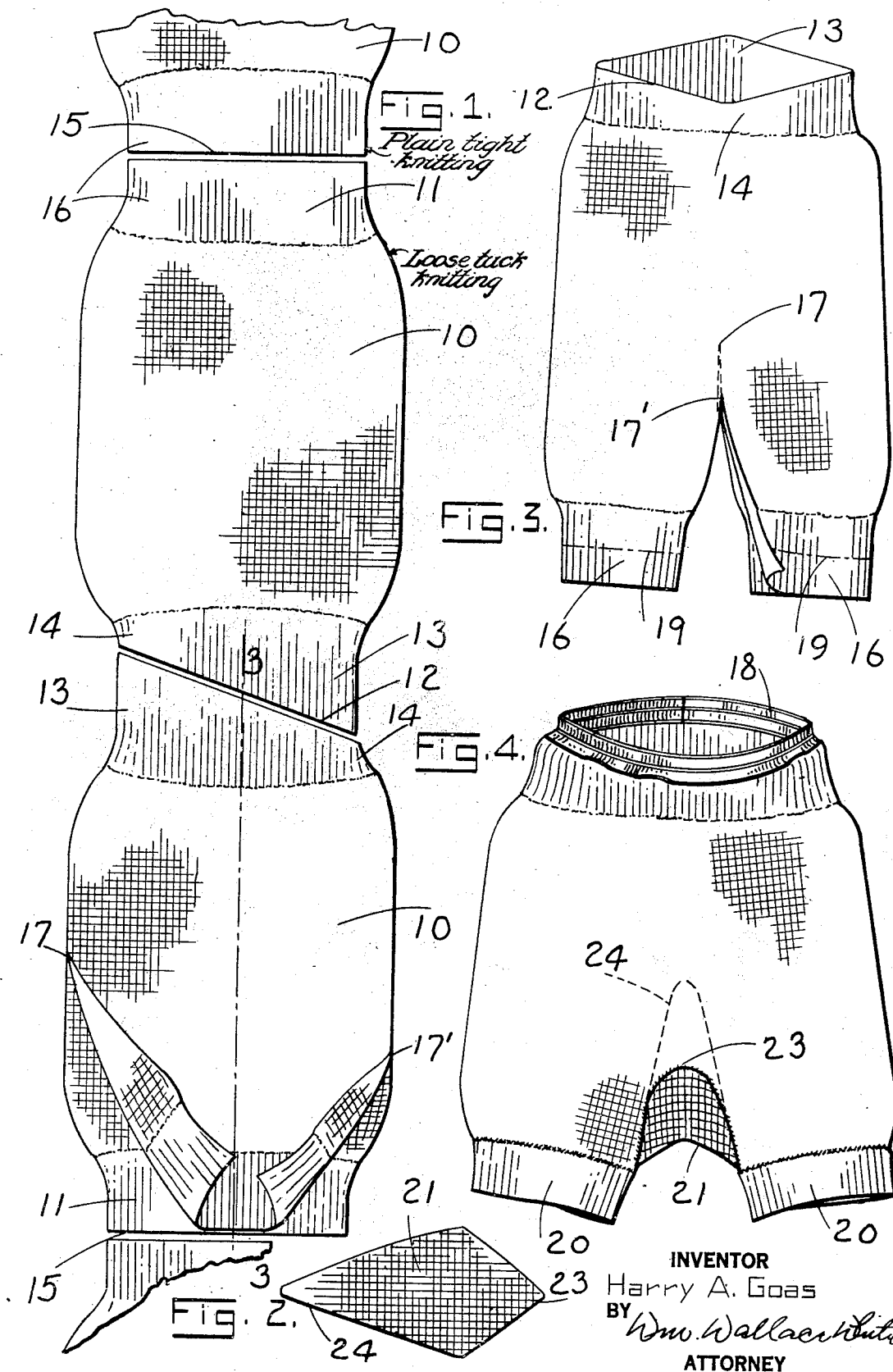
H. A. GOAS

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BODY GARMENT AND METHOD OF MANUFACTURE

Filed April 21, 1932

3 Sheets-Sheet 1



INVENTOR
Harry A. Goas
BY *Wm. Wallace White*
ATTORNEY

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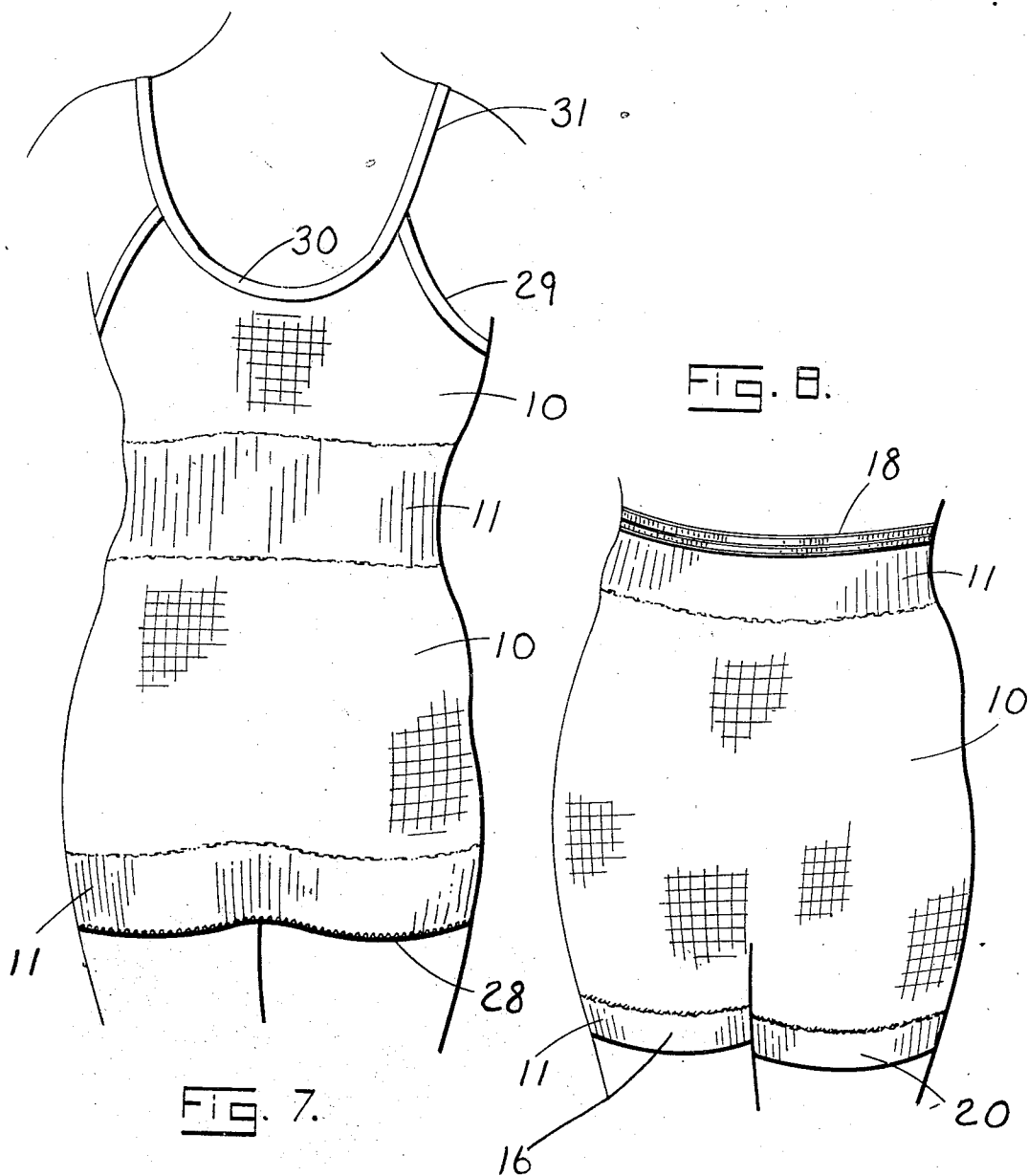
H. A. GOAS

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BODY GARMENT AND METHOD OF MANUFACTURE

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INVENTOR
Harry A. Goas
BY *Wm. Wallace White*
ATTORNEY

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H. A. GOAS

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3 Sheets-Sheet 3

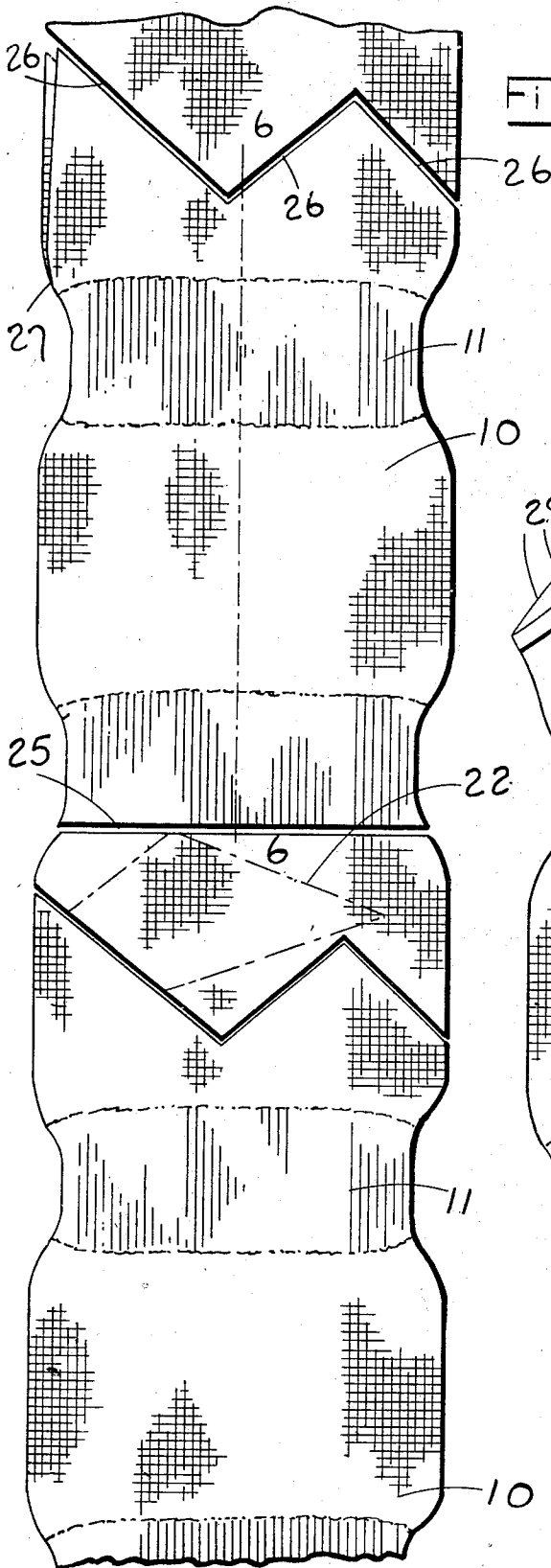


FIG. 5.

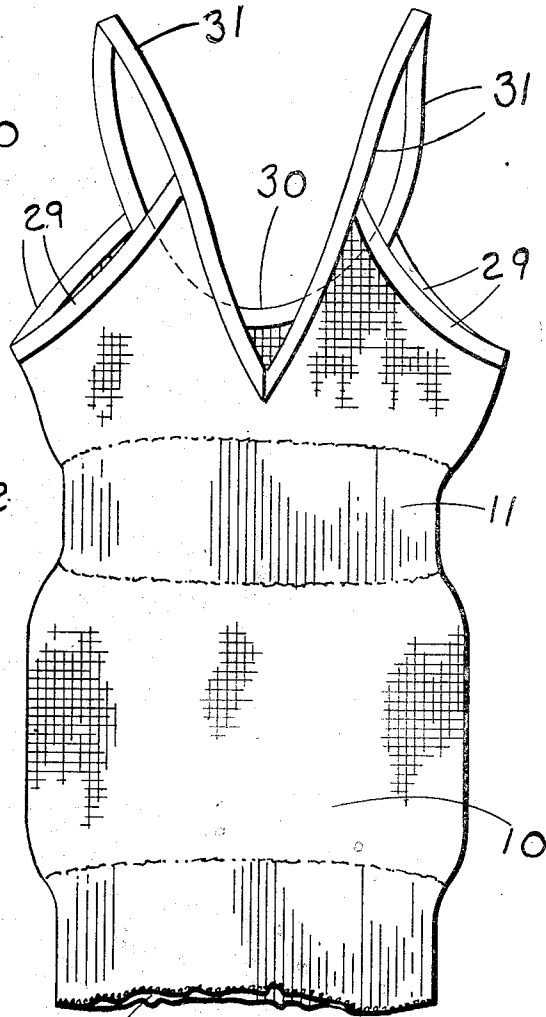


FIG. 6.

INVENTOR
Harry A. Goas
BY *Wm. Wallace White*
ATTORNEY

UNITED STATES PATENT OFFICE

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BODY GARMENT AND METHOD OF
MANUFACTUREHarry A. Goas, Schuylkill Haven, Pa., assignor to
Julius Kayser & Co., a corporation of New
York

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4 Claims. (Cl. 66—176)

This invention relates to knitted undergarments and to the method of manufacturing the same, and relates more particularly to ladies' upper and lower garments made from seamless or tubular knitted material, having regularly arranged uniform sections of alternately located loose and tight knitting, and also to a method of producing both garments from tubular material to locate the tight or close knitting at the waist and also below the hips.

One object of this invention is to provide a bifurcated undergarment cut from a section of tubular knitted material to provide a closely knitted section at the waist and similarly knitted sections around the limbs while providing an intervening portion of loose or elastic knitting to fit around the hips. A further object is to so cut the tubular material at the waist line to provide the desired fullness at the back of the garment.

Still another object of my invention is to provide an upper garment or vest having tight or closely knitted sections located at the waist and below the hips so as to cling closely to the body, having an intervening portion and a portion above the waist section both formed by loose or elastic knitting to accommodate the hips and the bust respectively; and a still further object of my invention is to produce the seamless or tubular knitted material in lengths comprising alternately arranged tight and loose knitting, so that both garments may be produced from material knitted on the same machine.

A still further object is to produce a tubular or seamless knitted material with alternately arranged sections of plain and tuck knitting to produce the relatively tight and loose portions, and to form the plain sections all of uniform dimensions, to form tuck sections all of uniform dimensions, and to produce the tubular material on automatically operating circular machines without any change in the yarn fed to the needles for the two different types of knitting.

With these and other objects in view, my invention consists in the novel construction of the lower bifurcated garment and the upper garment or vest, and in the method of producing the same as hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that various changes in the form and proportions and in minor details may be made without departing from the spirit of the invention or sacrificing any of the advantages thereof.

In the drawings,

Figure 1 is a view of the tubular knitted material cut to produce a number of lower garments;

Fig. 2 is a view of a crotch piece;

Fig. 3 is a view showing one of the parts of Fig. 1, but folded approximately along the centre line 3—3 of Fig. 1;

Fig. 4 is a similar view, but showing the finished garment;

Fig. 5 is a view similar to Fig. 1, but showing the tubular material cut for the production of upper garments or vests;

Fig. 6 is a view of the finished vest folded approximately along the line 6—6 of Fig. 5, and finished off ready for use;

Fig. 7 is a front view of the upper garment or vest on the body; and,

Fig. 8 is a similar view of the lower or bifurcated garment.

The strips of tubular material shown at Figs. 1 and 5 both comprise spaced sections of loose or tuck stitches of uniform dimensions alternating with uniform sections of tight or plain knitting; and while the drawings show—by way of illustration or example—different dimensions in these two strips, it will be understood that the upper and lower garments may both be made from a strip shown at Fig. 1 or from a strip as shown at Fig. 5; but it will be noted that each strip essentially comprises loose sections 10 which are uniform throughout the strip and are arranged alternately with tight sections which are also of uniform dimensions throughout.

In the production of the seamless or tubular knitted material shown at Figs. 1 and 5, a circular knitting machine having dial and cylinder needles is preferably employed, although other suitable types of circular knitting mechanisms may be employed, and automatic means of the known type are provided for the automatic manipulation of the dial cams in order to change from plain to tuck knitting and to change again from tuck to plain at the proper times to produce uniform sections 10 of tuck knitting interposed between uniform sections 11 of plain knitting, so as to produce a length of tubular material in which the sections 10 are relatively wide and loose while the sections 11 are relatively narrow and tight, and in which both sections have the desired elasticity or stretch to closely fit the parts of the body to which they are applied. In the production of the material composed of the sections 10—11, I employ preferably a circular knitting machine of the type in which eight yarns are successively fed to the needles and means of

the usual well-known type are provided in order to change from tuck to plain knitting and to change back from plain to tuck knitting to produce the desired form of fabric, with alternately arranged loose and tight sections, without variation in the feed of the yarn to the needles.

Referring particularly to Figs. 1 to 4 inclusive, the material is cut along an inclined line 12 through tight sections 11, so as to provide a deep portion 13 to form the back of the waist section of the garment and a shallow portion 14 to form the front portion of the waist section in order to give increased fullness at the rear of the garment and the line 12 passes through the fabric in such a manner that the part 13 at one side of the line is opposite to a part 14 at the opposite side thereof, so that the desired shape is obtained without any waste material. The next tight sections 11 in the fabric are cut along the lines 15 passing transversely through the centre of these sections, so as to provide uniformly dimensioned parts 16 to form the cuff or lower extremity of the leg portions of the bifurcated garment. As shown at the lower part of Fig. 1, the left-hand edge of the tubular fabric is slit from the lower edge 15 to a point 17, while the opposite edge is slit from the same line 15 to the point 17'. The material is then folded approximately along the line 3—3 as shown at Fig. 3, so that the leg portions are formed with their inner edges loose and with the rear opening higher than the opening at the front. The waist portions formed by the line 12 are then provided with an elastic band or strap 18, Fig. 4, to fit snugly around the waist. The lower extremities of the leg portions are then folded inwardly along the line 19, Fig. 3, so as to form the double cuff 20, Fig. 4, of tight or closely knitted material. The inner edges of the leg portions are then completed by the insertion of the crotch piece 21, Fig. 2, which preferably consists of two thicknesses of the knitted material, which may be cut from a waste portion of the fabric by cutting along the line 22 Fig. 5, and the edges of this crotch piece 21 are seamed to the edges of the leg portions of the garment with the part 23 at the front and the part 24 at the back, so that the crotch piece extends higher at the back than at the front of the garment, and thus gives additional fullness at the rear.

Referring to Figs. 5 and 6, the tubular material is cut along the lines 25 and along the lines 26, while the upper left-hand edge is slit from the line 26 to the point 27. Each blank bounded on its lower edge by the line 25 and on its upper edge by the line 26 is then folded approximately along the line 6—6 of Fig. 5 to form the vest or upper garment, which is finished off by means of overcast stitching or the equivalent thereof 28 along the lower edge, by the application of a binding 29 around the openings below the arms, and by the application of a binding or band 30 which is fastened along the cut edges at the front and back of the garment and forms loops 31 to serve as shoulder straps for the support of the vest.

It will thus be seen that the upper garment or vest and the lower or bifurcated garment are both made from the same or similar tubular material, and in both garments the loose or tucked portions serve to accommodate the hips, while the tight or plainly knitted portions are localized at the waist and around the limbs below the hips, so that both garments fit snugly to the contours of the body, while in the case of the vest a loose or tucked portion also serves to fit closely around the bust.

I am aware that in the manufacture of knitted underwear it has been heretofore proposed to construct the body of the garment from tubular knitted material specially provided to localize at the waist line of the wearer a section of tight or plain knitting, while the parts above and below are of loose or tucked knitting to give the necessary accommodation for the wider portions of the body; but it has not, so far as I am aware, been known to produce both upper or vest garments and lower or bifurcated garments from a tubular strip of knitted material comprising uniformly arranged tight or plain knit sections of uniform dimensions alternating with loose or tucked sections also of uniform dimensions, and an important feature of my invention is the employment of standard tubular or seamless material of uniformly arranged sections so as to give maximum production at minimum cost.

In the case of the lower or bifurcated garment the tubular material is so cut that there is no waste material, while in the production of the upper garment or vest the waste material between adjacent blanks is largely utilized in the formation of the crotch piece for the bifurcated garment.

Although the drawings and the above specification disclose the best mode in which I have contemplated embodying my invention, I desire to be in no way limited to the details of such disclosure, for in the further practical application of my invention many changes in the form and proportions may be made as circumstances require or experience suggests without departing from the spirit of the invention within the scope of the appended claims.

What I claim is:—

1. A method of producing knitted body garments which comprises knitting a continuous tubular fabric with a multiplicity of alternately arranged uniform loosely knit sections and uniform tightly knit sections, the loose sections being all of similar dimensions and the tight sections being also of dimensions similar to each other, cutting the double thickness of the tubular material substantially transversely of the latter to form tubular blanks but in such a way that one of the cut edges is at an angle to the other, slitting at least one edge of the blanks partway of its length to form a unitary one-piece garment, and finishing off the end of the relatively tight portion of the knitting below the hips.

2. A method of making a bifurcated undergarment which comprises knitting a continuous tubular fabric with uniformly dimensional relatively loose tuck portions interposed directly between relatively tight portions of uniform dimensions throughout the length of the fabric, cutting the double thickness of the tubular material through the tight sections to form tubular blanks, one of the cuts being transverse to the tubular material and the other at an angle thereto, slitting the edges of the blanks from the transverse cut partway up the length of the blank, folding the blank to form the leg portions, inserting a crotch portion between the legs, which crotch portion, with the additional material formed by cutting one edge of the blank on an inclined line, gives increased depth at the back of the garment, and finishing off the tight sections at the waist and below the hips in the garment.

3. A knitted undergarment formed from a blank cut from a tubular web having annular uniformly spaced loosely and tightly knitted sections, the loose sections being all of similar dimen-

sions and the tight sections being also of dimensions similar to each other, said blank comprising an intermediate loose section which is adapted to enclose the hips and two integral tight sections at each end of said loose section, one of said 5 tight sections having increased depth at the back and forming the waist of the garment, the other tight section being cut partway of its length and folded inwardly to form relatively tight portions to enclose the limbs just below the hips and an 10 inserted crotch piece connecting the leg encircling portions and extending to the back of the garment to produce, in cooperation with the tight portion having increased depth at the back, 15 increased fullness therein.

4. A knitted body garment formed from a blank cut from a tubular web having annular uniform-

ly spaced loosely and tightly knitted sections, the loose sections being all of similar dimensions and the tight sections being also of dimensions similar to each other, the blank being formed by cutting the double thickness of the tubular material substantially transversely of the latter but in such 5 a manner that one of the cut edges is at an angle to the other, said blank comprising two loosely knitted sections for the bust and hips, the loosely knitted bust section being slit part way of its 10 length, a tightly knitted section for the waist between and integral with said two loosely knitted portions and another tightly knitted portion integral with the lower edge of the loosely 15 knitted hip encircling portion, said tubular blank being finished off at the top.

HARRY A. GOAS.