Aug. 10, 1954 J. ARTZ 2,685,691

GARMENT WITH EXPANSIBLE NECKLINE

Filed Nov. 20, 1952

Fig. 1

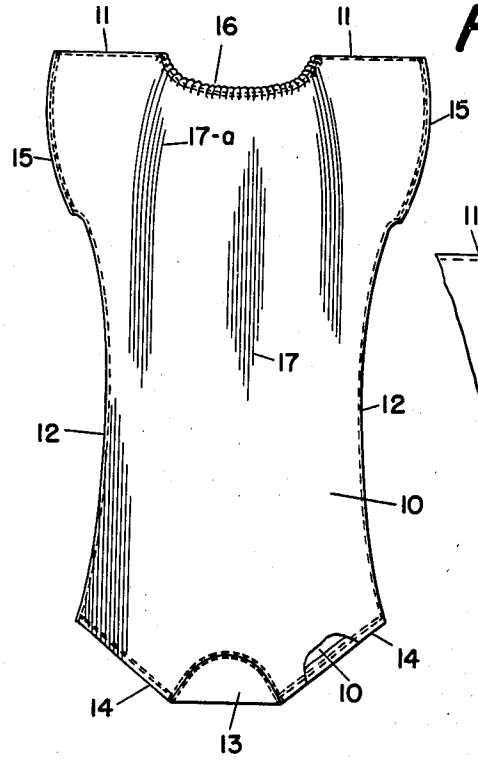


Fig. 2

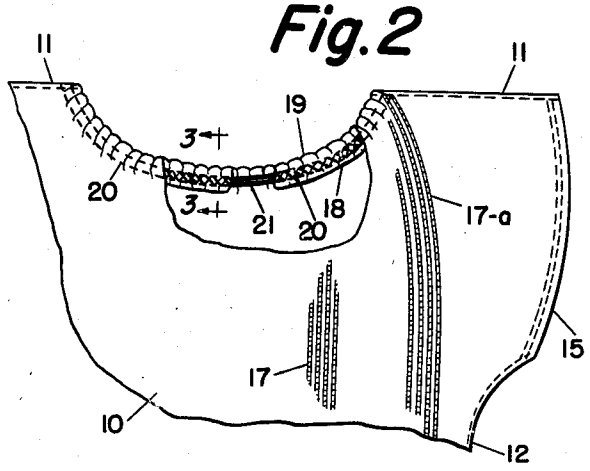


Fig. 3

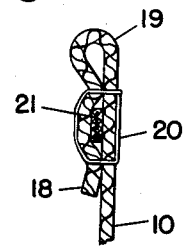
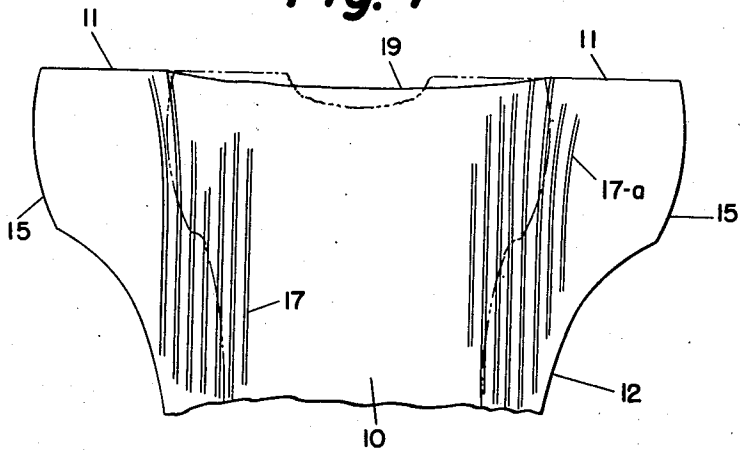


Fig. 4



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GARMENT WITH EXPANSIBLE NECKLINE

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5 Claims. (Cl. 2—78)

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The present invention relates generally to articles of clothing and it relates more particularly to torso-covering garments of the continuous pull-over or step-into type having a cleftless neckline (as distinguished from coat-type garments having free vertical edges extending downward from the neckline to the bottom and customarily provided with buttons, slide-fasteners or similar closure elements).

An object of the present invention is to provide a new and improved expansible cleftless neckline construction for garments of the continuous, pull-over or step-into type. Another object of the present invention is to provide a novel resiliently expansible cleftless neckline construction for a continuous torso-covering garment of the pull-over or step-into type, which is simple and inexpensive to produce and which gives great stretchability from a normal-size contracted configuration, so as to facilitate donning and doffing of the garment, while providing a comfortable relatively snug fit around the neck when worn. Still another object of the present invention is to provide a torso-covering garment having separate leg-openings and having a continuous cleftless resiliently-expansible neckline which can be stretched sufficiently to enable it to pass over the hips when the garment is put on (by stepping into the neck-opening thereof) but which is capable of contracting to a normal relatively snugly fitting configuration around the neck when worn. A further object of the present invention is to provide a leotard-type garment having a continuous cleftless resiliently-expansible neckline capable of being stretched sufficiently to enable the garment to be put on by stepping into the neck-opening thereof, without the need for a separable extension with closure-elements to increase the size of the neck-opening.

Other objects and advantages of the present invention are apparent in the following detailed description, appended claims and accompanying drawings.

Leotard-type garments, which are one-piece, continuous, torso-covering garments with separate leg-openings and sleeveless shoulder-portions, are customarily knitted so as to fit snugly about the hips and torso of the wearer, the wales running generally vertically so as to provide relatively great horizontal or transverse or circumferential stretchability (50% or more of the normal contracted size), permitting it to stretch considerably from its original, more or less tubular configuration when being put on, and thereafter to contract to the contours of the body.

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Leotard-type garments (which are customarily constructed of separate knitted front and back panels seamed together at the sides to provide a more or less unitary, continuous structure as aforesaid) have heretofore required incorporation of a cleft running part way down the back from the neckline to give an opening sufficiently large to clear the hips when the garment is put on (by stepping into the neck-opening, and the leg-openings, and pulling the garment up over the torso); the cleft being provided with a slide fastener or buttons-and-buttonholes or other disengageable closure elements to enable it to be closed when the garment has been donned, to provide the desired relatively snugly-fitting neckline. This cleft construction not only adds considerably to the cost of the garment, but also represents an inconvenience in putting on and taking off the leotard, to say nothing of the possibility of damage to, or failure of, the closure elements during use or as the result of laundering.

According to the present invention, there has, for the first time, been provided a leotard having a cleftless neckline which can stretch resiliently to a sufficient extent to pass the hips and which contracts to normal, relatively snug-fitting neck size. Generally speaking, this is achieved by cutting the neckline to the same transverse or circumferential dimension as the torso or body portion of the garment, doubling over the cut edge, laying a length of partially stretched, elastic webbing which is stitched in place by double-needle loop stitching permitting it both to stretch and to contract from its initial partially stretched condition, and thereafter permitting the elastic webbing to contract to provide a somewhat gathered neckline of circumferential dimension such that it fits relatively snugly about the neck. Since the neckline, as cut, has the same transverse or circumferential dimension as the body portion of the garment, it can stretch to an equal degree by reason of the inherent course-wise resilience of the knitted structure (the laid-in elastic webbing being capable of extending further from its initial partially stretched condition to accommodate the stretching of the knitted structure), thereby enabling the neckline to pass easily over the hips when the garment is being put on or taken off, while contracting to normal relatively snug-fitting configuration about the neck when worn.

For the purpose of illustrating the invention, there is shown in the accompanying drawings one form thereof which is presently preferred and which has been found in practice to give satisfactory results; it being understood, how-

ever, that the invention is not limited to the precise arrangements and instrumentalities illustrated.

Referring to the accompanying drawings in which like reference characters indicate like parts throughout:

Figure 1 is a front elevational view of a leotard constituting one embodiment of the present invention.

Figure 2 is an enlarged fragmentary view of the upper portion of the leotard of Fig. 1; parts being broken away better to reveal the construction of the neckline.

Figure 3 is a vertical cross-sectional view, taken generally along the line 3—3 of Fig. 2, showing the nature of the neckline construction.

Figure 4 is a fragmentary front elevational view showing the upper portion of the leotard as it appears when stretched transversely; the normal unstretched configuration thereof being shown superimposed, in dash-dot lines.

In the drawings, there is shown a leotard made up of more or less identical front and back panels 10 of knitted textile material stitched together along left and right shoulder seams 11 and left and right side seams 12 and joined at the bottom by a crotch insert panel 13; the panels being cut to provide leg openings 14, arm openings 15 (disposed laterally somewhat beyond the side seams 12) and a neck opening 16. The leotard is thus a generally continuous, tubular, torso-covering garment of more or less integral construction, in which the wales 17 of the knitted panels 10 run generally vertically and longitudinally of the garment, so as to provide relatively great transverse or circumferential stretchability in a manner well known in the knitting art. For example, the leotard can be constructed so as to be stretchable to a transverse or circumferential dimension more than half again the normal contracted size; whereas the vertical or longitudinal stretchability is only a small fraction of the normal size of the garment.

As indicated particularly in Figs. 2 and 3, the neck opening 16 is formed by turning in the curved cut-edge 18 of each panel 10 to form a double-ply neckline 19 and stitching the turned-in cut-edges in place by an extensible row of double-needle chain stitching 20.

The cut-edges 18 have an original transverse or circumferential dimension generally the same as that of the main torso-covering portion of the leotard. However when the neckline 19 is formed, a length of elastic webbing 21 is laid into the fold of the double-ply construction, in partially stretched condition and is secured in place by the stitching 20, as shown in Figs. 2 and 3. When the neckline is formed, the elastic webbing 21 contracts to its normal length and, in so doing, reduces the transverse or circumferential dimension of the neckline 19 to a point at which it is considerably smaller than that of the main body portion of the leotard and provides a relatively snug fit about the neck of the wearer.

This reduction in neckline circumference is achieved primarily by a slight gathering of the neckline, as indicated in Fig. 1, although there is also a relatively small degree of compression of the knitted structure with the wales brought slightly closer together than is normally the case.

On the other hand, since the elastic webbing 21 was laid in, in only partially stretched condition, it is possible to extend the transverse or circumferential dimension of the neckline 19 from its

contracted size, beyond that at which it was formed, to an extent equalling, and indeed slightly surpassing, the stretched circumferential dimension of the main body portion of the garment.

In other words, the far greater extensibility of the elastic webbing 21 permits the neckline to be stretched from its contracted size to a size at least equalling the maximum stretched circumferential size of the main body portion of the leotard, so that the neckline 19 can accommodate and pass over any part of the body of the wearer which will fit inside the main body portion of the garment. Indeed, since it is common knowledge that the free end portions of a circumferentially elastic tubular body can stretch to a slightly greater degree than the intermediate portion of the body, it can be seen that the neckline can extend to a circumferential dimension even greater than the maximum circumferential dimension of the main body portion, thereby expediting the donning and doffing of the garment (which is customarily worn in somewhat stretched condition, with the degree of stretch greater at the hips, bust and shoulders than at the waist) and minimizing the possibility of failure due to overstretching.

Figure 4 shows, in solid lines, the relative appearance of the neckline and the main body portion of the leotard in fully stretched position, as compared to the normal contracted configuration of the garment, as shown superimposed in dash-dot lines.

Since, as pointed out above, the neck opening can be expanded in circumferential dimension to the maximum stretched size of the garment, it is obvious that the leotard can be put on by simply stretching the neckline with the hands, stepping into the expanded neck opening and the two leg openings, and finally pulling the garment up over the hips, inserting the arms into the arm openings and permitting the neckline to come together, in relatively snugly fitting position about the neck.

It is apparent, therefore, that it is no longer necessary to provide a cleft or slit extending downward from the neckline to give the increased size needed to permit the garment to be put on and taken off, as is the case with conventional constructions heretofore employed.

As can be seen in Figs. 1 and 2, those wales extending upward from adjacent the side seams 12 curve inward somewhat, as at 17-*a*, in passing to the pulled-in contracted neckline. However, when the neckline is stretched, as in Fig. 4, the wales extend generally straight up, the bent or curved portion 17-*a* being eliminated.

While especially adapted for leotards or like garments wherein an unusual degree of stretch is desired in the neckline, the novel construction of the present invention may also be employed effectively in necklines of other pull-over type garments, wherein it provides snug fit and great stretch without the need for separately formed collar portions, thereby greatly reducing cost of manufacture.

According to the present invention, it is possible to construct a leotard or other tubular knitted garment in which the body is capable of stretching to a circumferential dimension at least half again as great as the normal unstretched dimension, while the neckline can be stretched to at least twice its contracted gathered-in dimension.

The present invention may be embodied in other specific forms and, accordingly, the above-described embodiment is to be considered in all respects merely as illustrative and not restric-

tive, reference being made to the appended claims, rather than to the foregoing description, as indicating the scope of the invention.

Having thus described my invention, I claim as new and desire to protect by Letters Patent:

1. A knitted generally tubular torso-covering garment having wales running generally longitudinally thereof and having substantial transverse or circumferentially resilient stretchability, said garment having shoulder portions provided with arm openings, said garment having a continuous annular free edge folded over inwardly to provide an annular double-ply cleftless hem defining a neck opening, said annular free edge having a normal unstretched transverse or circumferential dimension generally the same as that of the body of the garment and being stretchable to a transverse or circumferential dimension at least as great as the maximum transverse or circumferential dimension of the fully stretched body of the garment, an annular length of elastic webbing disposed within said double-ply hem, and a continuous annular row of extensible stitching securing the folded over annular free edge to the body of the garment and also securing the elastic webbing in place within the double-ply hem, said annular length of webbing being laid in in partially stretched condition so that in its normal unstretched or contracted condition it gathers in the double-ply hem to provide a neck opening having a transverse or circumferential dimension appreciably smaller than the normal unstretched transverse or circumferential dimension of the body of the garment, said annular length of webbing being stretchable to a degree sufficient to permit maximum stretching of the annular free edge at the neck opening as aforesaid.

2. A construction according to claim 1, wherein the garment is cleftless and provided with shoulders extending laterally beyond the body portion and is adapted to be put on by stepping into the neck opening thereof, the neckline being constructed and arranged to stretch sufficiently to pass over the hips and torso of the wearer and thereafter to contract so as to provide a relatively snug fit about the neck of the wearer.

3. A construction according to claim 1, wherein the body of the garment is capable of being stretched to increase its transverse or circumferential dimension to a figure at least half again as great as the normal unstretched dimension, and wherein the neckline is capable of being stretched to increase its transverse or circumferential dimension to a figure at least twice as great as the contracted gathered-in dimension.

4. A construction according to claim 1, wherein the garment is a leotard having front and back panels seamed together at the sides and shoulders to provide a generally continuous tubular structure having laterally extending shoulders and having leg openings and arm openings in addition to the neck opening, said leotard being adapted to be put on by stepping into the neck opening thereof, the neckline being capable of stretching to increase its transverse or circumferential dimension to a figure at least twice as great as the contracted gathered-in dimension, thereby to permit the neckline to pass over the hips and torso of the wearer when being put on.

5. A construction according to claim 4, wherein the front and back panels are substantially identical, and wherein the normal unstretched transverse or circumferential dimension of the main body portion of the leotard is generally uniform, the leotard being constructed and arranged to be worn under varying degrees of tension at different parts of the body of the wearer, and with the neckline maintained in relatively contracted gathered-in condition by the elastic webbing so as to fit more or less snugly about the neck of the wearer.

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