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(54) Elastic garment with portions having differentiated radial compressions

(57) Garment made of elastic yarn comprising at least one tubular structure (1) suited, by virtue of its elasticity, to be worn adherent to the body, in which the tubular structure (1) has at least one coaxial band (2) composed of consecutive portions (2a, 2b, 2c) having different elastic constants with respect to one another and suited to exercise a correspondingly different radial compression action (T_L, T_A, T_P) on the body. In particular the band is the elastic band, or waistband, of the girdle of a pair of pantyhose.

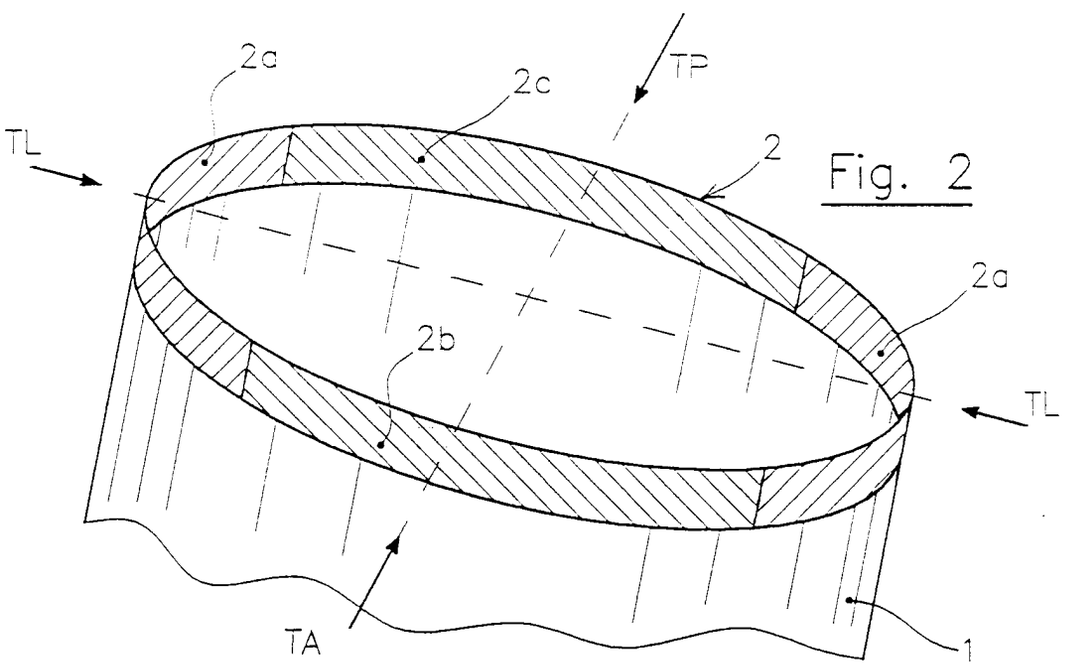

Fig. 2

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Description

[0001] The present invention relates to the field of garments and, more precisely, to an elastic garment having a tubular structure which, due to its elasticity, is suited to adhere to the body.

[0002] In the field of garments of the above-mentioned type, and particularly with regard to socks for men and women, pantyhose, knee-high stockings and the like, the elastic adherence of the garment to the body creates a compression which is distributed across the same in a way that is generally not homogeneous. The compression exerted by some parts of the garment is, within certain limits, necessary (e.g. to sustain the garment) and in some cases is even desirable (e.g. when it fulfills a function of containment, as in the case of the body portion or girdle in a pantyhose).

[0003] Taking into consideration, for example, the elastic band or waist-band of a pair of pantyhose, it has an elastic constant which is uniform for every portion of the same. That is, if one were to divide a waistband into equal portions, each portion would behave in the same way if it were subjected to an elastic stress. The more a portion of a waistband is stretched, the greater the elastic response and corresponding internal elastic tension will be, and, consequently, the greater the compressive force exerted on the corresponding part of the body will be. This means that the compression will be greater in correspondence with those particular areas of the body which contribute most to the tension of the waistband (i.e. generally the side areas). The non uniform distribution of the compression generates effects that are sometimes bothersome, above all in relation to body shapes (e.g. more or less wide hips, more or less voluminous tummies, etc.) which do not conform to the standard adopted for each particular size.

[0004] The object of the present invention is to provide an elastic garment, having an at least partially tubular structure, which is able to adapt itself perfectly to the body shape of the person who wears it, without exerting any undesirable local compression.

[0005] A particular object of the present invention is to provide a garment of the above-mentioned type, which comprises an elastic band suited to exercise an intensity of compression which is appropriate and differentiated with respect to the various body portions around which it is wrapped.

[0006] A further object of the present invention is to provide a garment of the above-mentioned type in the form of a pair of pantyhose with an elastic waistband suited to exert a lower compression in correspondence with the hips while exerting a higher compression with respect to the tummy.

[0007] These objects are accomplished by the elastic garment according to the invention whose essential features are specified in claim 1.

[0008] The characteristics and advantages of the elastic garment according to the present invention will become apparent in the following description of one of its possible embodiments, given as an example and not limitative, with reference to the attached drawings in which:

- figures 1a and 1b show front and side views of the girdle of a pair of pantyhose having an elastic band according to the present invention;
- figure 2 shows a perspective view of an elastic band for pantyhose according to the invention, with a schematic indication of the compression forces it exerts when worn.

[0009] In the attached figures, the invention is illustrated exemplarily with reference to a pair of pantyhose. The girdle of the pantyhose is indicated with 1, and the elastic band, or waistband, is indicated with 2 and is realized with a suitable elastic yarn, according to the prior art. According to the invention, waistband 2 is composed of a number of consecutive portions having different elastic constants. In particular, in the embodiment illustrated, there are two lateral portions 2a which are diametrically opposite one another and are connected by a front and a back portion, indicated with 2b and 2c. Side portions 2a have an elastic constant which is lower than that of front portion 2b and back portion 2c. In this way, for a given amount of stretching, which is fixed since it is imposed by body shape, the elastic reaction in the sides and the corresponding compression will be weaker, whereas the elastic reaction in the front and back portions and their relative compressions will be correspondingly greater.

[0010] The aforementioned is schematically indicated in figure 2 wherein side compression force T_L and front and back compression forces T_A and T_P are shown with their relative intensities.

[0011] The waistband can be considered equivalent to a closed system of springs having different elastic constants. If it is stretched, an elastic reaction force develops inside the system of springs and is directed along the nearly circular form of the system. The radial compression which is created in a certain predetermined area results from the composition of the elastic forces - exercised point by point in that particular area. Therefore, with respect to a standard waistband (i.e. having a uniform elastic constant), the waistband having differentiated compressions or, in other words, a different elastic constant from one area to the next according to the invention is able to adapt perfectly to the shape of the body, optimizing the compression in the various points. This situation is shown in figure 2 in which one can clearly see that the forces of elastic compression in the sides are decreased, whereas they are increased in the front and back portions.

[0012] Naturally, an elastic waistband can be realized with a different number of portions having different elastic constants and arranged differently from the ones illustrated in figure 2, with the object of obtaining partic-

ular effects. Furthermore, continuous bands formed by consecutive portions having different elastic constants can be provided both on the girdle and on other parts of the pantyhose where, in particular, the system having different radial compressions according to the invention can be combined with the traditional system of differentiated longitudinal compression, thus obtaining an integrated system of differentiated three-dimensional compression.

[0013] It is furthermore clear that continuous bands having consecutive portions with different elastic constants can be provided not only on pantyhose, but also on socks for men and women, on knee-high stockings and on tubular portions of other elastic garments.

[0014] The elastic garment with a continuous band, or more in particular, with a waistband composed of portions having different elastic constants, can be realized with the use of known technologies. For example, in order to have a lower elastic constant in the side areas, a particular type of stitch can be used so that the corresponding area is more elastic or, in other words, for a determined amount of stretching of the area in question, the elastic reaction is weaker. The nullification of the elastic effect of the elastomer in the area in which a weak compression effect is desirable can also be obtained by inserting a particularly inelastic yarn during knitting in order to impede the stretching of the elastomer and therefore nullify the elastic reaction in that particular area (e.g. the side area). In order to increase, on the other hand, the effect of the compression in particular areas (e.g. the front area), additional elastomer can be inserted in the stitch, thus creating an area in which the elastic constant and corresponding elastic reaction are greater.

[0015] Variations and/or modifications can be brought to the elastic garment with portions having differentiated radial compressions according to the present invention, without departing from the scope of the invention as defined in the attached claims.

Claims

1. Garment made of elastic yarn comprising at least one tubular structure suited, by virtue of its elasticity, to be worn adherent to the body and characterized by the fact that said tubular structure (1) has at least one coaxial band (2) composed of consecutive portions (2a, 2b, 2c) having different elastic constants from one another and suited to exercise a correspondingly different radial compression action (T_L, T_A, T_P) on the body.

2. Garment according to claim 1, characterized by the fact that it is a pair of pantyhose, with said tubular structure consisting of a girdle (1) of said pantyhose, said coaxial band being the elastic band (2), or waistband, of said pantyhose.

3. Garment according to claim 2, wherein said waistband (2) has side portions (2a) connected to one another by corresponding front (2b) and back (2c) portions, the elastic constant of said side portions being lower than that of said front and back portions.

4. Garment according to claim 1, wherein said coaxial band (2) with portions having elastic constants different from one another is the band of a sock for men or women, a knee-high stocking or the like.

5. Garment according to claim 2, wherein said coaxial band (2) is provided in the girdle of pantyhose.

6. Garment according to the claim 1, wherein said coaxial band (2) is provided in leg portions of pantyhouse.

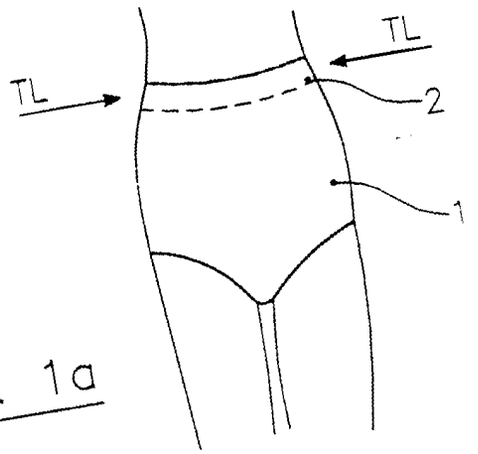

Fig. 1a

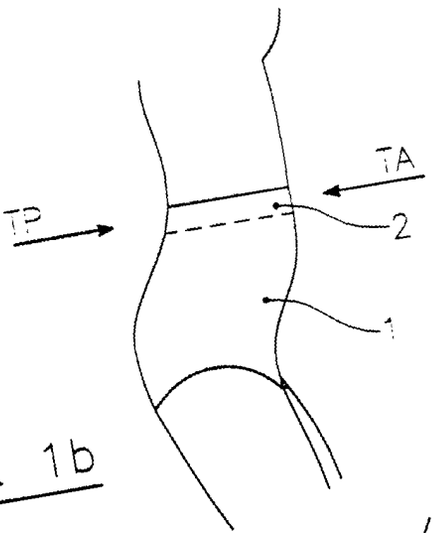

Fig. 1b

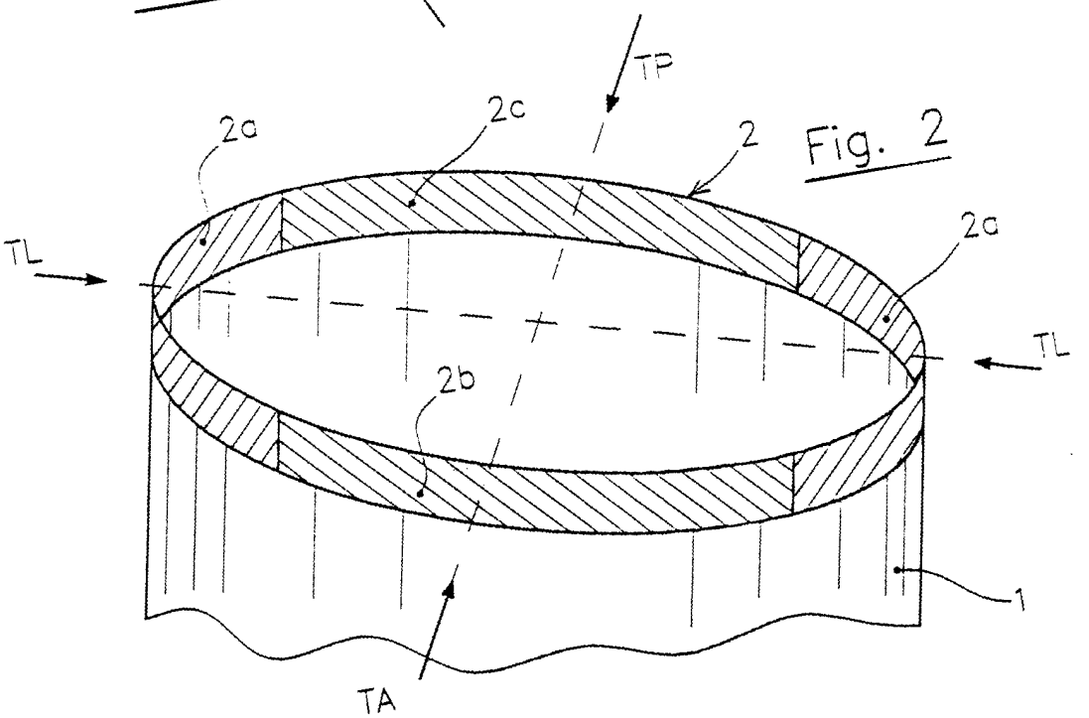

Fig. 2