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(73) Patenthaver: **Hexonia GmbH, Heinrich-Haanen-Strasse 4, 41334 Nettetal, Tyskland**

(72) Opfinder: **Hexels, Gerd, Reinersstr. 3, 41334, Nettetal, Tyskland**

(74) Fuldmægtig i Danmark: **Plougmann Vingtoft A/S, Strandvejen 70, 2900 Hellerup, Danmark**

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Description

The invention relates to a textile garment for an upper body, in particular an undershirt, with hydrophilic zones and with heating zones.

The invention also relates to an underwear system according to the preamble of Claim 16.

A generic textile garment, in particular an undergarment, is known from DE 202 07 797 U1.

In the case of known textile garments, one problem is that moisture given off by the skin of the wearer, in particular sweat and/or steam, are not removed from the skin sufficiently quickly and not to a sufficient extent.

DE 202 07 797 U1 describes an undergarment, in particular an undershirt and underpants, which have zones, which are to absorb the moisture given off by the skin of the wearer of the garment particularly well to remove it quickly from the skin of the wearer. This is to be attained by means of a combination of a polyester fibre with a polyamide fibre. The polyester fibre can thereby be plated with the polyamide fibre such that the polyamide fibre lies on the outside of the knitted region. Due to the fact that the polyester fibre, which is a hydrophobic fibre, lies on the inside of the knitted region and the polyamide fibre, i.e. the hydrophilic fibre, lies on the outside of the knitted region, it is to be attained that moisture and/or steam given off by the skin of the wearer is transported quickly from the layer (polyester fibre) bearing against the skin into the layer (polyamide fibre) located thereabove. The moisture is to distribute and evaporate very quickly over a large area in the exterior layer of the polyamide fibre. According to DE 202 07 797 U1, a so-called wicking, i.e. a strong fluid suctioning effect, is to be used to transport the sweat from the inside of the knitted region to the outside of the knitted region.

According to DE 202 07 797 U1, it is provided that the garment comprises at least one second knitted region, which includes a polyester fibre and a polypropylene fibre. By using the relatively air-impermeable polypropylene fibre, the garment is to have regions, which avoid a cool-down of particularly exposed parts of the body of the wearer of the garment. According to DE 202 07 797 U1, based on an undershirt, the particularly exposed parts are the shoulder blade region as well as the outer upper arm regions of the sleeves. The polypropylene fibre can thereby be twisted twice to provide a larger volume to the heat-insulating layer.

With regard to underpants, it can be provided that the polyester fibre with the polypropylene fibre is used in a region, which at least partly covers the kidney region, the genital region and/or the outsides of the thighs of the wearer.

According to DE 202 07 797 U1, it is provided that the polyamide fibre has a high inherent elasticity, so that the use of an additional elastane yarn in the knitted regions can be forgone.

The collar, the waist band and the cuffs of the undershirt according to DE 202 07 797 U1 can consist of an elastane yarn or the used elastane yarn can in particular be surrounded with a polyamide yarn, respectively.

According to DE 202 07 797 U1, it can further be provided that an upper shoulder region connected downwards to the collar is knitted from the polypropylene fibre and the elastane yarn. Due to the relative air-impermeability of the polypropylene yarn, the heat dissipation in the shoulder region is to thereby be reduced.

Garments, which are provided with a heating or a hydrophilic zone or which are made completely of a hydrophilic material, are further known from the general prior art. For example, FR 2 514 619 A1 discloses a textile garment, which is constructed of a hydrophilic sweat-transporting zone throughout, whereby fluid can be discharged quickly from the body of the wearer. However, this simultaneously also leads to a strong cool-down of the wearer, whereby the article of clothing can be used in a meaningful way only in combination with specific further articles of clothing worn on top. For example, WO 2007/107264 A1 can be used as example for a suitable fabric for sweat removal for such an article of clothing. Reference is made in an exemplary manner to WO 01/01803 A1 and to US 5,636,380 A as further general prior art.

The problem of the sweat removal from the skin of the wearer, without sensitive parts of the body cooling too strongly, is not sufficiently solved by means of the known textile garments.

The present invention is thus based on the object of creating a textile garment for an upper body, which can be worn comfortably and which in particular provides for a good removal of sweat from the skin of the wearer.

The present invention is also based on the object of creating an advantageous underwear system, which can be worn comfortably, and which provides for a good removal of sweat from the skin of the wearer.

With regard to a textile garment, which is to be created, for an upper body, this object is solved according to the invention by means of Claim 1.

With regard to an underwear system, which is to be created, the object is solved by means of Claim 16.

With regard to the below-described orientation of the zones of the textile garment, it is assumed that the latter is worn correctly by a wearer.

Due to the fact that at least one hydrophilic sweat-transporting zone is provided, which, for

producing a chimney effect, extends in the manner of a duct from a lower end region of the garment to the neck opening thereof and is connected to the hydrophilic zones, it is attained that the sweat of an upper body is absorbed quickly by the garment. The sweat is thus removed from the skin of the upper body and is removed to the textile surface to evaporate there. The solution according to the invention uses the so-called "Venturi principle". By the creation of a chimney effect, an active sweat transport, which is not comparable to the current solutions, is created in the textile. In particular when the garment is an undershirt, the chimney effect, which is attained by means of the solution according to the invention, is particularly advantageous, because the sweat is thereby transported to the neck opening, which is frequently the only region, at which the undershirt encounters ambient air, so as to allow moisture to evaporate there.

In the sweat-transporting zone, the absorbed sweat is transported upwards, i.e. from the direction of a lower end region of the garment in the direction of the neck opening.

The solution according to the invention with the hydrophilic sweat-transporting zone, which leads in the manner of a duct from the lower end region of the garment to the neck opening and is connected to the hydrophilic zones, has the result that the sweat is actively transported to where it meets ambient air to evaporate there.

The inventor also realized that the neck opening is particularly well suited for removing sweat, because air is permanently supplied to the neck opening due to the pump effect of the garments, when the wearer of the garment moves. In addition, air frequently also reaches into the garment across further openings, such as for example zippers and the like, and then flows past the neck opening when leaving the garment. The problem of the previously known textile garments, in particular of the previously known textile underwear for the upper body, was that they only had zones or islands, respectively, which either heated or were formed hydrophilically. However, if the textile garment is a garment, in particular underwear, on top of which a further garment is worn, the sweat does reach from the skin of a wearer to the textile outside in the case of the currently known solutions, but does not come into contact with ambient air, in which the sweat could evaporate. It would be necessary for this purpose that the garment, which is worn on top of the underwear, in turn absorbs the sweat of the underwear located on the textile outside and transports it further to the outside. These solutions, however, are insufficient.

In the case of a textile garment, a comprehensive solution for actively transporting sweat to where it can evaporate optimally by contact with ambient air, is not known from the prior art. Instead, it is explicitly provided in the case of DE 202 07 797 U1 to knit the upper shoulder region of an elastane yarn and a polypropylene yarn, whereby a heating effect or an air-impermeable effect, respectively, is to be attained, but a quick discharge of moisture is

not supported.

In the case of the known solutions, the hydrophilic zones fill with moisture or sweat, respectively, over time, which is then not discharged from there. The known solutions are not suitable to realize a good removal of moisture from a textile undergarment and thus only provide for a limited sweat absorption.

The solution according to the invention is not only suitable for undergarments, but also for upper body garments, to improve the removal of sweat there. This also applies in particular because upper body garments, for example in the form of shirts or sweaters, can frequently also be covered by further garments, for example a jacket, whereby the sweat removal to a zone, which is in contact with the ambient air, is important, in turn.

It is advantageous when the hydrophilic sweat-removing zone runs substantially centrally and linearly or in the longitudinal direction, respectively, from bottom to top on the front face of the garment. The hydrophilic sweat-transporting zone thus runs vertically or perpendicular, respectively, when the garment is worn correctly on an upper body. The hydrophilic sweat-transporting zone is thereby connected to a, preferably a plurality of, preferably horizontally running hydrophilic zones, which absorb sweat from the skin of the upper body in the known manner. Due to the connection of the hydrophilic zones with the hydrophilic sweat-removing zone, the sweat absorbed by the hydrophilic zone is removed. It goes without saying that sweat can also be absorbed directly from the hydrophilic sweat-removing zone from the skin of an upper body and can be removed.

The hydrophilic zones and the sweat-removing zone can preferably be made of the same or identical, respectively, hydrophilic material or yarn, respectively.It is advantageous, when, alternatively or additionally, a hydrophilic sweat-transporting zone is formed on the rear face of the garment. The hydrophilic sweat-transporting zone on the rear face can be formed analogously to the above-described hydrophilic sweat-transporting zone on the front face of the upper body garment.

The hydrophilic zones, which are connected to the hydrophilic sweat-transporting zone or zones can for example cover the region of a pelvis and/or the chest region of an upper body when the textile garment is worn correctly.

The inventor determined by means of body scanning and thermography that specifically the region of the neck and the chest region sweat more than average, so that hydrophilic zones for absorbing the sweat are advantageous specifically in these regions. It goes without saying that further hydrophilic zones can be provided as well.

According to the invention, it can further be provided that the hydrophilic zone in the chest region comprises at least one highly hydrophilic underzone, which covers the region of the

chest that has the most sweat glands. This underzone runs substantially as a horizontal strip, preferably centrally in the chest. Starting at the hydrophilic sweat-transporting zone, which runs centrally and vertically on the front face of the garment, two highly hydrophilic side ducts thus extend (left and right) horizontally and centrally over the chest region.

By means of the highly hydrophilic zones in the chest region, it is attained that an even quicker sweat removal than in the hydrophilic zones, takes place there.

In a further development of the invention, it can further be provided that the heating zones are arranged in such a way that they cover the region of the kidneys when the garment for the upper body is worn correctly over the upper body. In particular the kidney region is particularly sensitive in the case of the human body, so that it should be given special protection. It is only known from DE 202 07 797 U1 to design underpants in such a way that they protect the kidneys. It is advantageous, however, when the undershirt or generally a garment for the upper body, respectively, has a heating zone for the kidneys. Such a heating zone can be realized for example by means of a double layer of the used material or by means of thickened zones.

The heating zones are preferably designed in such a way that they absorb less sweat from the skin of the upper body, because an evaporation of sweat always leads to a cool-down as well. The heating zones are thus less hydrophilic than the hydrophilic zones. The heating zones are made of a material, which is more air-impermeable, so that a cool-down of the body in this region is prevented or at least reduced, respectively.

According to the invention, it can further be provided that, between the neck opening and the lower end region of the garment, compression zones are formed, which have a higher elasticity or inherent elasticity, respectively, compared to the hydrophilic zones or a base knit of the garment. The compression zones actively support the “Venturi principle” or the chimney effect, respectively, and also increase the wearing comfort.

It is advantageous when the compression zones are formed below the chest region. It is further advantageous when the compression zones terminate above the kidney regions.

According to the invention, it can further be provided that the compression zones encompass the heating zones, in particular the heating zones assigned to the kidneys.

The compression zones can be designed in such a way that the garment in this region is pulled particularly close to the upper body. The compression zones should have the result that the garment has a particularly body-hugging fit. In an advantageous embodiment, the entire garment is to generally bear tightly against the upper body, the elasticity in the compression zones can nevertheless be even higher in order to ensure an even tighter fit.

In one embodiment, it can be provided that the compression zones are also designed hydrophilically or have a hydrophilic decor, respectively, which corresponds to the hydrophilic zones.

According to the invention, it can be provided that the compression zones are less elastic than the cuffs, which can be provided on the lower end of the garment or on the ends of the sleeves, respectively, or in the neck region.

It is advantageous when a base knit serves as a base for the sweat-removing zones and/or the hydrophilic zones and/or the heating zones and/or the compression zones.

According to the invention, it can thereby be provided that the garment has a uniform base knit. The yarn or the yarns, which form(s) the base knit, can then be knitted or otherwise connected with further materials, preferably further yarns, to form the desired zones. It is to be particularly preferred thereby when all provided zones, in particular the sweat-removing zone, the hydrophilic zone, the heating zone, and the compression zone, are formed by a variation of the base knit with further yarns or other materials.

For example polypropylene or a polypropylene fibre, respectively, is suitable as base knit. However, the use of a polyester fibre or of another suitable fibre or a combination of different fibres, respectively, is possible as well.

According to the invention, only the formation of a hydrophilic sweat-transporting zone, which, for producing a chimney effect or a wick effect, respectively, in the manner of a duct from a lower end region of the upper body garment to the neck opening thereof is essential, so that the sweat absorbed from the skin of an upper body can be removed from the hydrophilic zones connected thereto.

The different zones, in particular also the hydrophilic zones, do not mandatorily need to be formed by a material other than the base knit, it is also possible to provide the base knit with hydrophilic elements or to attain the desired effect, respectively, by means of the type of knitting or the thread guide, respectively, and/or different knitting patterns.

It is advantageous when the garment does not have any seams or when only the sleeves (if present) are connected to the "main part" of the garment via seams. If necessary, however, it is also possible to make the sleeves in one piece in a seamless manner with the main part by means of a suitable type of knitting. One advantage of a seamless design of at least the main part of the garment for the upper body is that it can be worn more comfortably and that the freedom of movement is not limited. A seamless formation of at least the main part of the garment further supports the active sweat transport in the sweat-transporting zones.

According to the invention, it can be provided that the neck region or the neck opening,

respectively, of the garment is knitted as well.

According to the invention, it can be provided that the different zones and the sweat-removing zone are optically emphasized, for example by colour changes. For example, a bi-colour design of the garment is suitable for this purpose. The different functional zones are thus pointed out to the user on the one hand, and an emphasis possibly supports the technical effects psychologically once again on the other hand.

An advantageous underwear system follows from Claims 16 and 17. This underwear system can also be combined with the above-described features and in particular the features, as they are disclosed in Claims 1 to 15.

The underwear system according to the invention provides that an undershirt according to Claims 1 to 15 is combined with underpants, that the underpants, in a region where they overlap the undershirt when the underwear system is worn correctly, are made of a material identical to the material from which the overlapping region of the undershirt is made.

The hydrophilic zones and in particular also the active sweat removal from the hydrophilic zones is supported in that the underpants and the undershirt are made of the same material in the overlapping regions. It is generally provided that the underpants and the undershirt overlap in the pelvic region, i.e. in a region where the undershirt has a hydrophilic zone.

According to the invention, it can also be provided, however, that the underpants and the undershirt overlap in the kidney region. In this case, the underpants can have a region, the material of which is identical to the material, which is used for the undershirt in the kidney region, and a region, which is identical with the region, which the undershirt has in the pelvic region.

With regard to a possible design of the compression zones, the heating zones, the hydrophilic zones (including the sweat-transporting zones), reference is made in an exemplary manner to the combination of yarns, which are described in DE 202 07 797 U1. It goes without saying, however, that the invention is not limited to this, a plurality of further combinations is instead possible in order to design the desired zones.

A suitable hydrophilicity can for example be produced via a corresponding finishing of the fibres. The fibres can be finished e.g. with plasma for this purpose, or hydrophilic groups can be "coupled" to the fibres. It is further advantageous when an antimicrobial finishing, e.g. by means of silver ions, is provided. All of the yarn, i.e. the entire knitted fabric or individual zones, in particular the hydrophilic zones, can thereby be provided with an antimicrobial finishing, e.g. silver ions.

Advantageous embodiments and further developments of the invention follow from the

dependent claims. An exemplary embodiment of the invention is illustrated below according to its principle by means of the drawings.

Fig. 1 shows a front view of a garment according to the invention for a male upper body in combination with underpants as underwear system;

Fig. 2 shows a view according to Fig. 1 with an illustration of the active sweat removal caused by the sweat-transporting zones;

Fig. 3 shows a front view of a garment according to the invention for a male upper body in a second embodiment in combination with underwear as underwear system;

Fig. 4 shows a rear view of a garment according to the invention for a male upper body in combination with underwear as underwear system;

Fig. 5 shows a front view of a garment according to the invention for a female upper body in combination with underpants as underwear system; and

Fig. 6 shows a front view of a garment according to the invention for a female upper body in a second embodiment in combination with underwear as underwear system.

Fig. 1 shows a textile garment for a male upper body in an embodiment as undershirt 1. Underpants 2, which, together with the undershirt 1, form an underwear system, are further illustrated. The upper edge of the underpants 2 is only illustrated with dashed lines.

The undershirts 1 and underpants 2 illustrated in Figures 1 to 6 can generally also be used independently of one another, i.e. they do not need to form an underwear system.

The undershirt 1 according to Fig. 1 is made of a base knit 3, which forms the base component for the functional zones, which will be described in more detail below. In the exemplary embodiment, the base knit 3 is made of polypropylene.

The undershirt 1 consists of a main part 4 and two sleeves 5. The main part 4 is designed in a seamless manner, only the connection of the main part 4 to the sleeves 5 takes place in the

known manner via a seam 6.

In the exemplary embodiment, the regions of the undershirt 1 where no functional zones are formed, consist of the base knit 3 and are identified accordingly in Fig. 1.

Cuffs 7 are formed on the ends of the sleeves 5 and on the lower end of the main part 4 in the known manner. The cuffs 7 thereby have a high elasticity.

A neck opening 8 of the undershirt 1 can also be formed as cuff. In the exemplary embodiment, the neck opening 8 is knitted or is formed as so-called knitted cuff. In the exemplary embodiment, the neck opening 8 is formed in a hydrophilic or highly hydrophilic manner to remove the sweat or to provide for an evaporation, respectively.

In the region of the pelvis as well as in the chest region of the wearer, the undershirt 1 according to Fig. 1 has hydrophilic zones 9. In the exemplary embodiment, the hydrophilic zones 9 are produced in that the base knit 3 is knitted with at least one hydrophilic fibre or a hydrophilic yarn, respectively, or is provided in other ways. The hydrophilic zones 9 are connected to a hydrophilic sweat-transporting zone 10 on the front face of the undershirt 1. To create a chimney effect, the hydrophilic sweat-transporting zone 10 is formed in the manner of a duct and extends from a lower end region of the undershirt 1, in the exemplary embodiment starting directly on the lower end, to the neck opening 8. The hydrophilic sweat-transporting zone 10 thereby runs centrally and substantially linearly from bottom to top or vertically, respectively, when the undershirt 1 is worn.

A sweat-transporting zone 10, which runs inversely, can be provided on the rear face of the undershirt 1. In the exemplary embodiment, the sweat-transporting zone 10 is made of the same material as the hydrophilic zones 9. The sweat transport resulting through the hydrophilic zones 9 and the sweat-transporting zone 10 from bottom to top – when the undershirt 1 is worn correctly – is illustrated schematically in Fig. 2.

In the exemplary embodiments, the hydrophilic zones 9 are connected to the sweat-transporting zone 10 in that they are made of the same material and are knitted in one piece.

In the chest region, the hydrophilic zone 9 according to Fig. 1 comprises a highly hydrophilic underzone 11, which, when the undershirt 1 is worn correctly, covers the region of the chest that has the most sweat glands. As further follows from Fig. 1, the highly hydrophilic subzone 11 runs approximately centrally within the hydrophilic zone 9 and is formed substantially by two strips that run horizontally. The highly hydrophilic subzone 11 can also be forgone. The hydrophilic zone 9 also comprises the region of the highly hydrophilic subzone 11 in the chest region in this case.

As follows from Fig. 1, the undershirt 1 has two heating zones 12, which are arranged in

such a way that they cover the region of the kidneys, when the undershirt 1 is worn correctly.

The heating zones 12 can be formed by means of a double layer or a compaction. Alternatively or additionally, it can further also be provided that a yarn is knitted with the base knit 3, which makes it possible to create the desired characteristic for the undershirt 1, namely to avoid that the skin surfaces, which are covered by the heating zone 12, cool down quickly. It can also be suitable for this purpose to design the heating zones 12 to be particularly air-impermeable.

As further follows from Fig. 1, the undershirt 1 has two compression zones 13. The compression zones 13 are arranged below the chest region or the corresponding hydrophilic zone 9, respectively, and above the kidney region or the heating zone 12, respectively. The compression zone 13 can for example be produced in that a yarn or a fibre, respectively, with a high inherent elasticity is knitted with the base knit 3.

The underpants 2 overlap the undershirt 1 in the pelvic region. The underpants 2, at least in the region where they overlap the undershirt 1, are made of the same material as the undershirt 1 in the overlapping region.

The undershirt 1, which is illustrated with its front face in Fig. 1, can be designed analogously on its rear face, wherein the distinctive body-specific features and differences in the sweat formation between the front face of an upper body and the rear face thereof can be considered. In particular the compression zones 13, the heating zones 12, and the hydrophilic zones 9 can be arranged on the rear face of the undershirt 1 in the region of the pelvis in the manner, as it is illustrated on the front face thereof.

A pump effect, which pumps air through a garment for an upper body when walking, occurs particularly strongly on the back, along the spine. Even in the case of tightly fitting garments, e.g. an undershirt, a duct forms there, through which air is pumped from bottom to top, past the shoulder blades, to the neck opening. In connection with the sweat-transporting zone 10, which preferably runs in this region, this is optimal for an active sweat removal.

It is not essential for the invention, from which yarn or from which fibre the hydrophilic zones 9, the sweat-transporting zone 10 or the heating zones 12 are formed, because this is well known from the general prior art, but the design of a sweat-transporting zone 10 for transporting sweat (from bottom to top) from the hydrophilic zones 9 to the neck opening 8 using the "Venturi principle" or a chimney effect or wicking, respectively, so that said sweat comes into contact with the ambient air there and can evaporate.

Figures 3 and 4 and Figures 5 and 6 each show the front face and the rear face of an undershirt 1 for a male or a female wearer, respectively. It is particularly advantageous thereby, when an undershirt for a man is formed according to Figures 3 and 4, and an

undershirt for a woman is formed according to Figures 5 and 6. However, the front face of the undershirt illustrated in Figures 3 and 5 can generally be combined with any rear face. Vice versa, the rear face of the undershirt 1 illustrated in Figures 4 and 6 can also be combined with any front face. It is advantageous in each case, when at least the front or rear face also has compression zones 13, heating zones 12, and hydrophilic zones 9 in the region of the pelvis.

The exemplary embodiments illustrated in Figures 3 to 6 can be produced by the selection of a suitable knitting type in such a way that the sleeves 6 are made in one piece with the main part 4 in a seamless manner. The active sweat transport, among other things, can thus be supported in the sweat-transporting zones, and the garment is more comfortable to wear. In the alternative, however, the sleeves 6 can also be connected to the main part 4 via seams in the known manner, a possible course of the seams 6 is thus illustrated in dashed lines in Figures 3 to 6.

The zones, which are provided with identical reference numerals in Figures 3 to 6, correspond to the zones illustrated in Figures 1 and 2 with respect to the design and function thereof, so that a corresponding further description is forgone. Possible deviations, in particular with respect to the positions of the zones, follow from Figures 3 to 6.

The second exemplary embodiment illustrated in Fig. 3 for a front face of an undershirt for a male wearer differs from the exemplary embodiment illustrated in Fig. 1 in that the sweat-transporting zone 10 divides into two partial ducts prior to reaching the neck opening 8. The two partial ducts form a region between them, which has the shape of a triangle in the exemplary embodiment, which is formed from the base knit 3.

The rear face of an undershirt 1 illustrated in Fig. 4 is particularly suitable in combination with the front face illustrated in Fig. 3, but also in combination with the front face of an undershirt illustrated in Fig. 1.

The rear face illustrated in Fig. 4 substantially differs from the front face of the undershirt illustrated in Figures 1 and 3 in the following features. The sweat-transporting zone 10 has a smaller width. However, the width can also be identical. A duct structure of the hydrophilic zones 9 and of the highly hydrophilic subzones 11, which is changed as compared to the chest region of the undershirt 1, is further realized in the region of the back, which is located opposite the chest region. A total of three pairs of highly hydrophilic subzones 11 is provided, which each, starting at the sweat-transporting zone, run in a strip-shaped manner in the direction of the sides of the undershirt 1. The highly hydrophilic subzones 11 are thereby surrounded by the hydrophilic zones 9. With respect to course and arrangement, the lowermost pair of the highly hydrophilic subzones 11 substantially corresponds to the highly

hydrophilic subzone 11 on the front face of the undershirt 1. The two other pairs of highly hydrophilic subzones 11 are arranged thereabove. In contrast to the front face of the undershirt, as it is illustrated in Figures 1 and 3, a pair of highly hydrophilic subzones 11 (the third pair), which, starting at the sweat-transporting zone 10, extends in a strip-shaped manner in the direction of the shoulder blades, is formed once again on the rear face of the undershirt 1 prior to reaching the neck opening, approximately at the height of the shoulder blades. The two highly hydrophilic subzones 11 of this pair are thereby surrounded by a hydrophilic zone 9, in turn.

Analogously to Fig. 1, the highly hydrophilic subzones 11 can also be forgone, the hydrophilic zone 9 can then be formed correspondingly larger in this case or can take up the space of the highly hydrophilic subzones 11, respectively.

For anatomical reasons, the shirts or undershirts 1, respectively, for ladies and men have differences, it is in particular advantageous to form small cups in the case of the ladies' shirts or undershirts, respectively. They can preferably be made of the base knit 3.

Fig. 5, which shows a front face of an undershirt 1 for a female wearer, substantially differs from Figures 1 and 2 in that a highly hydrophilic subzone 11 (i.e. a pair) is in each case arranged above the zones 12, which heat the kidneys. In the exemplary embodiment, the highly hydrophilic subzone 11 thereby has a substantially strip-shaped, narrow course. Above the highly hydrophilic subzone 11 and thus directly below the breasts of the female wearer, a compression zone 13 is provided, which also extends in a strip-shaped manner, but wraps around the entire front face of the undershirt 1 below the breasts. It is provided in the exemplary embodiment that the compression zone 13 has a partial piece, which extends upwards between the breasts. For this purpose, the compression zone has a protrusion running upwards or a bulge running vertically, respectively. The bulge of the compression zone 13 runs substantially in a line with the sweat-transporting zone 10. The bulge of the compression zone 13 ends with its upper end in a highly hydrophilic subzone 11. The highly hydrophilic subzone 11 is thereby arranged in a region between the breasts and above the breasts. In the exemplary embodiment, the highly hydrophilic subzone 11, however, does not run in a strip-shaped manner above the breasts, because a pair of a hydrophilic zone 9 is provided in this region, which, starting at the sweat-transporting zone 10 or the highly hydrophilic subzone 11, respectively, extends in a strip-shaped manner to the left and right in the direction of the sides of the undershirt 1.

In the exemplary embodiment illustrated in Fig. 5, the region encompassing the breasts of the female wearer is formed of the base knit 3. By means of the compression zone 13 below and between the breasts, it is ensured that the undershirt 1 fits tightly and that the sweat removal along the sweat-transporting zones 10 is thus supported. The highly hydrophilic

subzones 11 or the hydrophilic zones 9, respectively, are arranged in regions where the inventor has recognized that a particularly high sweat formation is to typically be expected. Instead of the highly hydrophilic subzones 11, hydrophilic zones 9 can also be formed. Deviations and adaptations of the individual zones are generally possible. This also applies for the other exemplary embodiments.

Fig. 6 shows a rear view of an undershirt 1, which is particularly suitable in combination with the front view of an undershirt 1 illustrated in Fig. 5.

Above the two heating zones 12, Fig. 6 in each case shows the formation of a highly hydrophilic subzone 11 (i.e. of a pair). The two highly hydrophilic subzones 11 are thereby formed higher than the corresponding highly hydrophilic subzone 11, which is provided on the front face of the undershirt 1 according to Fig. 5. This means that the highly hydrophilic subzone 11 has a larger expansion in the vertical direction on the rear face of the undershirt 1. A compression zone 13, which runs transversely over the entire rear face of the undershirt 1, runs in a strip-shaped manner above the two highly hydrophilic subzones 11, which are separated from one another by means of the sweat-removing zone 10. Compared to the compression zone 13, the compression zone 13 on the front face of the undershirt 1 runs higher and thus approximately at the height of the chest region of the female wearer on the rear face. A hydrophilic zone 9, which extends upwards from the lateral edges of the undershirt 1 in the direction of the neck region 8 or which runs approximately curve- or wedge-shaped, respectively, in the direction of the neck region 8, is formed above the compression zone 13. The hydrophilic zone 9 is provided with two pairs of highly hydrophilic subzones 11, which are each arranged in an inverse manner. The highly hydrophilic subzones 11 extend, substantially in a strip-shaped manner and curved slightly downwards, in the direction of the side edges of the undershirt 1, starting at the sweat-removing zone 10. In a shoulder region, the undershirt 1 according to Fig. 6 has a pair of hydrophilic zones 9, which are formed in a strip-shaped manner and which, starting at the sweat-transporting zone 10, extend in the direction of the shoulder blades. The design is thereby analogous to the formation illustrated in Fig. 4 on the rear face of an undershirt 1 for a male wearer. The hydrophilic strip-shaped zones 9 at the height of the shoulder blades are each divided by a highly hydrophilic subzone 11. Above the hydrophilic strip-shaped zone 9 at the height of the shoulder blades, a sweat-transporting zone 10 divides into two ducts, which lead to the neck opening 8 and which form a surface between them, which is made of the base knit 3.

Analogously to the rear face according to Fig. 4, the rear face of the undershirt 1 illustrated in Fig. 6 has three pairs of highly hydrophilic subzones 11.

The rear face of the undershirt 1 for a female wearer substantially differs from the rear face

of an undershirt 1 for a male wearer in that an additional hydrophilic zone 9 is provided between the heating zone 12 and the compression zone 13 in the case of the undershirt 1 for a female wearer and that the compression zone 13 thus has a correspondingly smaller height. In the case of a female wearer, the compression zone 13 furthermore extends over the entire width of the back section.

The compression zone 13 in the undershirt 1 for a female wearer has a supporting function in the underbust region.

Patentkrav

1. Tekstilbeklædningsgenstand til en overkrop, især en undertrøje, med hydrofile zoner og med varmende zoner, og med mindst en hydrofil svedtransporterende zone (10) der, for at give en skorstenseffekt, strækker sig på samme måde som en kanal fra et nedre endeområde af overkropsbeklædningsgenstanden (1) til dennes halsåbning (8) og er forbundet med de hydrofile zoner (9).

2. Tekstilbeklædningsgenstand ifølge krav 1, **kendetegnet ved at** den hydrofile svedtransporterende zone (10) i det væsentlige forløber midt på og retlinjet på en forside af beklædningsgenstanden (1).

3. Tekstilbeklædningsgenstand ifølge krav 1 eller 2, **kendetegnet ved at** der er dannet en hydrofil svedtransporterende zone (10) på bagsiden af beklædningsgenstanden (1).

4. Tekstilbeklædningsgenstand ifølge krav 1, 2 eller 3, **kendetegnet ved at** en hydrofil zone (9) dækker bækkenområdet når beklædningsgenstanden (1) bæres korrekt.

5. Tekstilbeklædningsgenstand ifølge et af kravene 1 til 4, **kendetegnet ved at** en hydrofil zone (9) dækker brystkasseområdet når beklædningsgenstanden (1) bæres korrekt.

6. Tekstilbeklædningsgenstand ifølge krav 5, **kendetegnet ved at** den hydrofile zone (9) i brystkasseområdet omfatter mindst en stærkt hydrofil underzone (11) der, når beklædningsgenstanden (1) bæres korrekt, dækker det område af brystkassen, der har flest svedkirtler.

7. Tekstilbeklædningsgenstand ifølge et af kravene 1 til 5, **kendetegnet ved at** de svedtransporterende zoner (10) og de hydrofile zoner (9) er fremstillet af et identisk materiale.

8. Tekstilbeklædningsgenstand ifølge et af kravene 1 til 7, **kendetegnet ved at de** varmende zoner (12) er arrangeret på en sådan måde, at de dækker nyrerne,

når beklædningsgenstanden (1) bæres korrekt.

9. Tekstilbeklædningsgenstand ifølge et af kravene 1 til 8, **kendetegnet ved at**, der mellem halsåbningen (8) og det nedre område af beklædningsgenstanden (1) er dannet kompressionszoner (13), der sammenlignet med de hydrofile zoner (9) eller en grundstrikning (3) i beklædningsgenstanden (1) har en større elasticitet.

10. Tekstilbeklædningsgenstand ifølge krav 9, **kendetegnet ved at** kompressionszonerne (13) er udformet under brystkasseområdet.

11. Tekstilbeklædningsgenstand ifølge krav 9 eller 10, **kendetegnet ved at** kompressionszonerne (13) ender oven over de varmende zoner (12).

12. Tekstilbeklædningsgenstand ifølge et af kravene 1 til 11, **kendetegnet ved at** en grundstrikning (3) fungerer som basis for de svedtransporterende zoner (10) og/eller de hydrofile zoner (9) og/eller de varmende zoner (12) og/eller kompressionszonerne (13).

13. Tekstilbeklædningsgenstand ifølge krav 12, **kendetegnet ved at** grundstrikningen (3) er polypropylen eller omfatter polypropylen.

14. Undertøjssystem med en undertrøje ifølge et af kravene 1 til 13 og underbukser, **kendetegnet ved at** underbukserne (2), i et område hvor de overlapper undertrøjen (1) når undertøjssystemet (1) bæres korrekt, er fremstillet af et materiale, der er identisk med det materiale, som det overlappende område af undertrøjen (1) er fremstillet af.

15. Undertøjssystem ifølge krav 14, **kendetegnet ved at** underbukserne (2) og undertrøjen (1) overlapper i bækkenområdet.

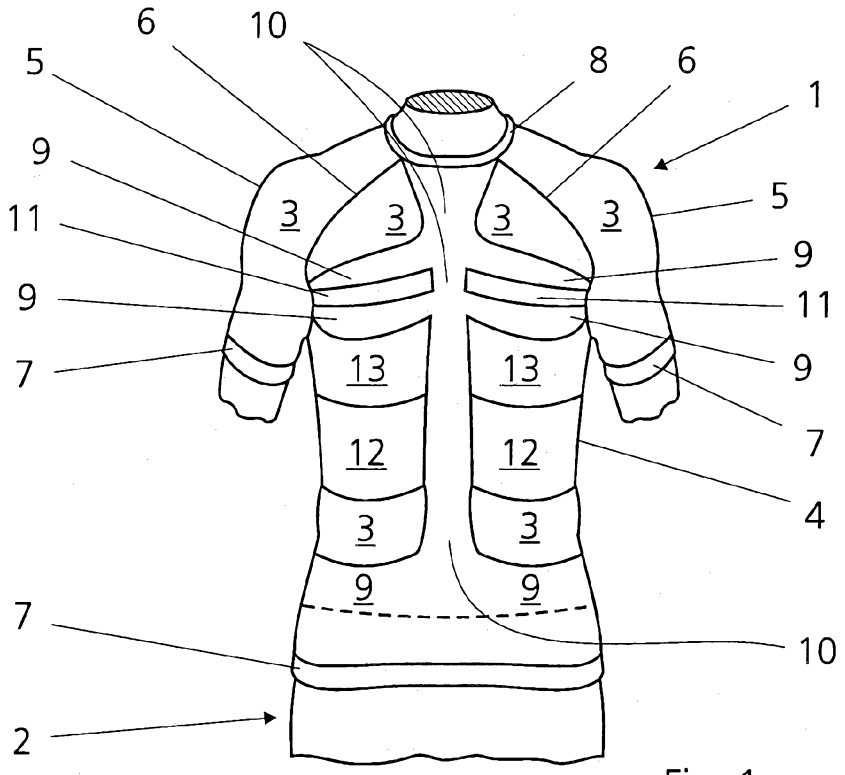
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Fig. 1

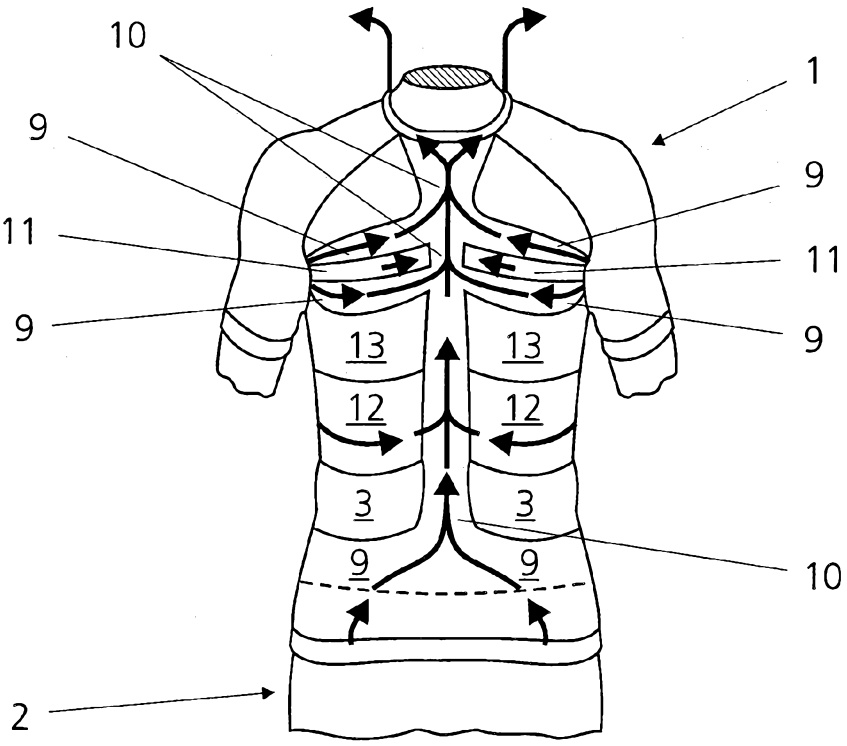
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Fig. 2

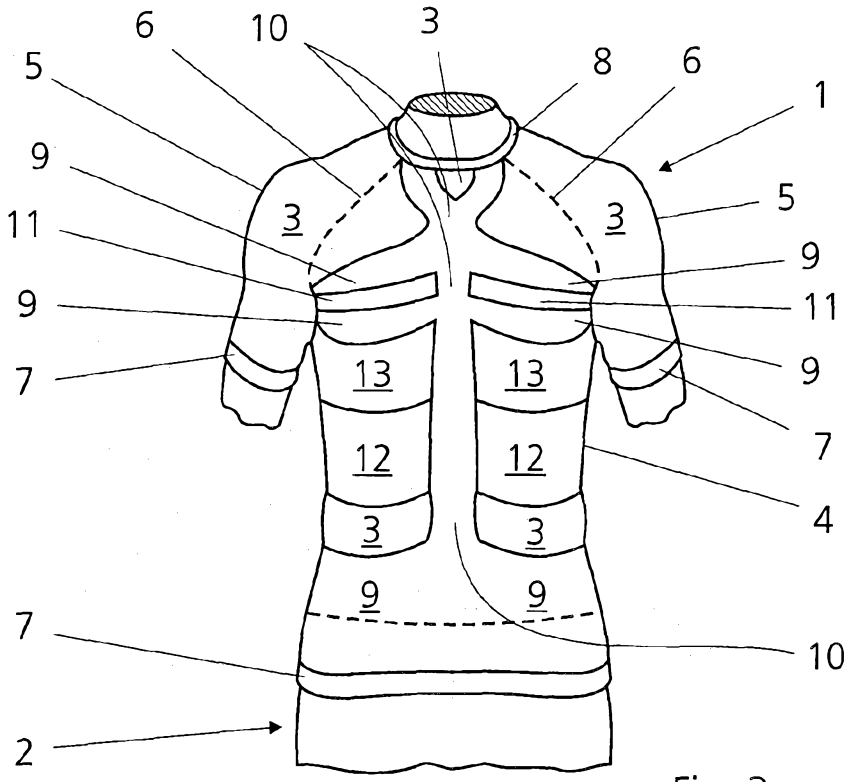
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Fig. 3

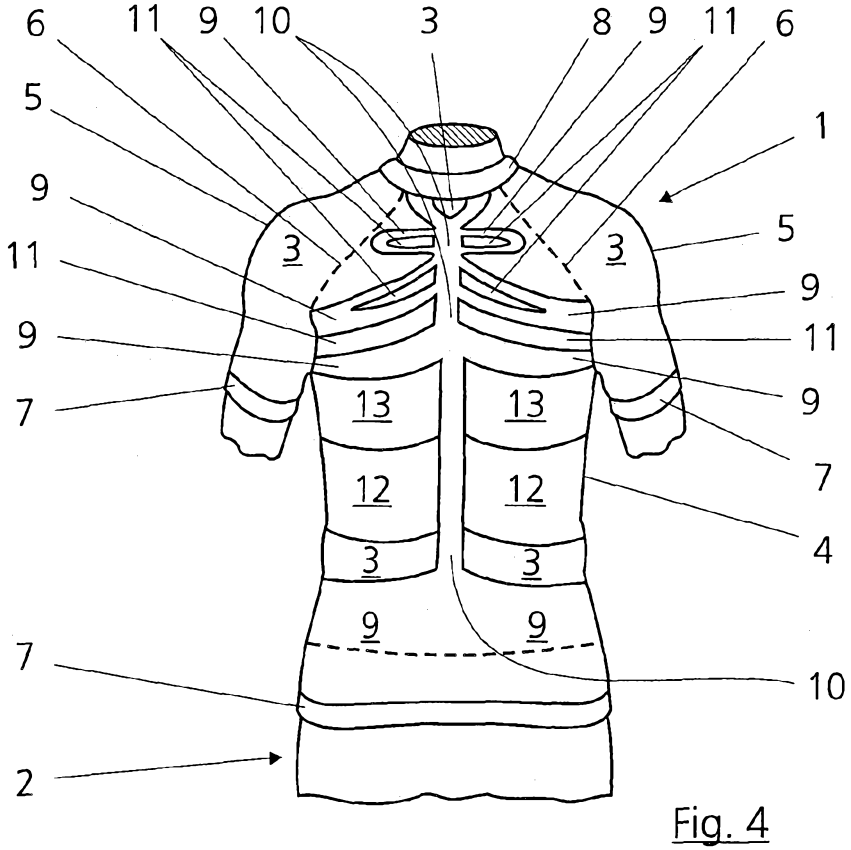
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Fig. 4

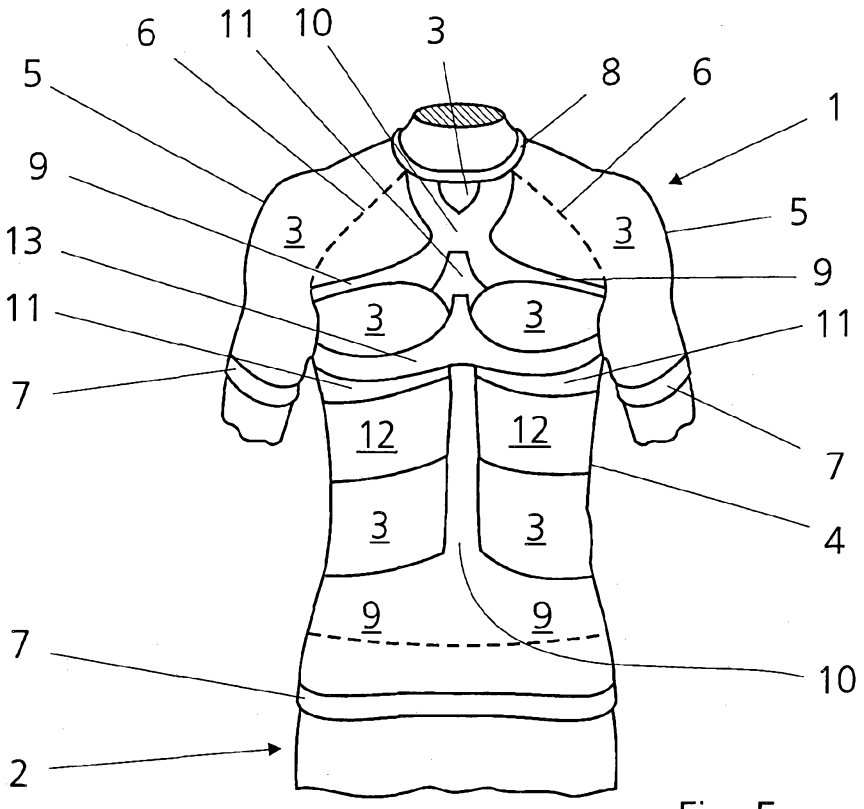
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Fig. 5

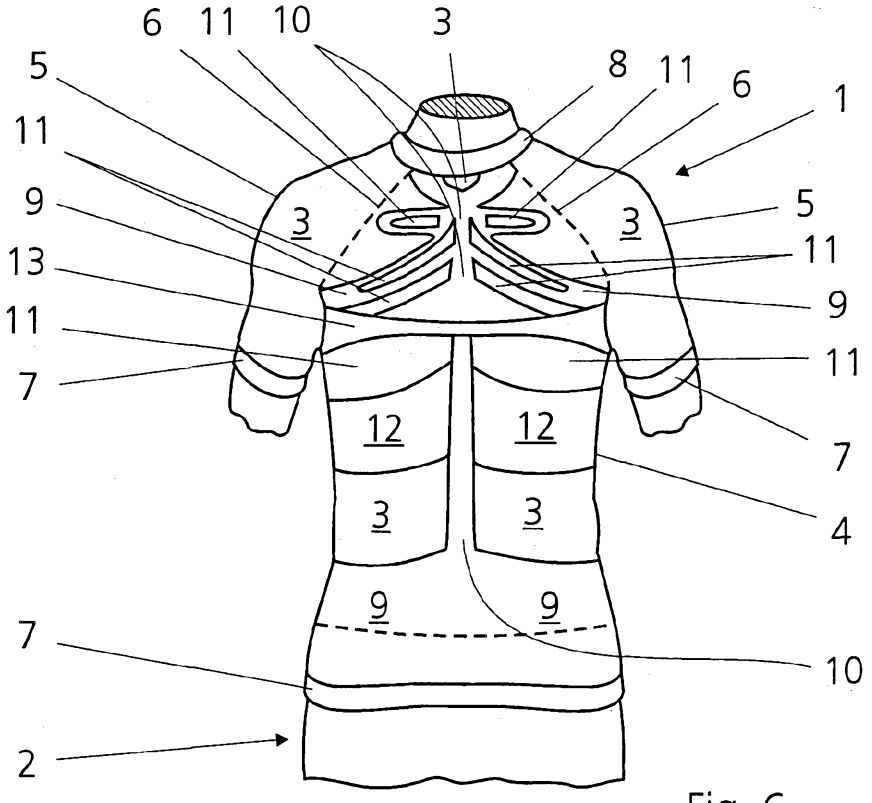
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Fig. 6