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(54) **PROTECTIVE GARMENT COMPRISING A VENTILATION OPENING AND VENTILATION METHOD FOR VENTILATING A PROTECTIVE GARMENT**

(57) The present disclosure relates to a garment (100) having a visible external surface and an internal surface adapted to face, in use, the body of a user, said garment (100) comprising a first portion (10) of said garment (100) and a second portion (20) of said garment (100) defining a ventilation opening (1) configured to place in communication said visible external surface and said internal surface. The garment (100) further comprises a deformable element (30) associated with said first portion (10) of said protective garment (100), wherein said deformable element (30) is configured to assume a first configuration, or closed configuration, and a second configuration, or open configuration, wherein in said first

configuration, or closed configuration, the deformable element (30) is configured to prevent or hinder the passage of a ventilation air flow, and wherein in said second configuration, or open configuration, the deformable element (30) is configured to allow a ventilation air flow through the ventilation opening (1) of said protective garment (100). In the first configuration, or closed configuration, the deformable element (30) is in a rest condition, while in the second configuration, or open configuration, the deformable element has an arch configuration designed to define said ventilation opening (1). The present disclosure also relates to a ventilation method for ventilating a protective garment (100).

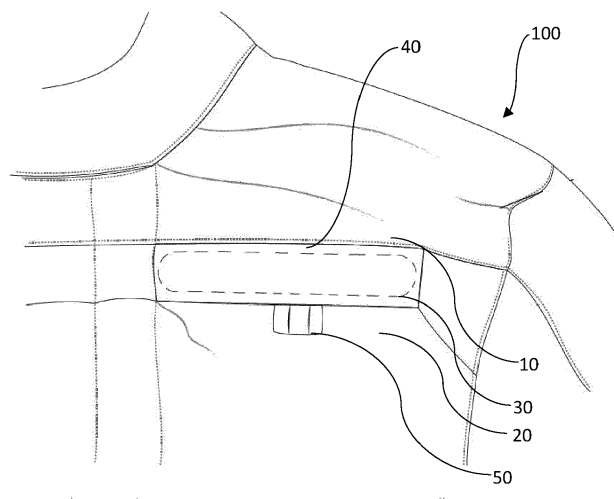


Fig. 1

Description

[0001] The present disclosure relates in general to a garment, preferably a protective garment. More particularly, the present disclosure relates to a protective garment, preferably a protective sports garment, comprising a device for improving a heat exchange between the body of a user and the environment outside the protective garment. The present disclosure relates moreover to a ventilation method for ventilating a protective garment.

[0002] In many activities, in particular in the sports sector, for example in motorcycling or in skiing, protective garments configured to protect the body of a user, in particular from abrasions due, for example, to falls or accidents, are used.

[0003] Generally, these protective garments are made of leather or in any case a non-breathable material or material with limited breathability, configured to protect the user's body from abrasions and from the wind and from the atmospheric conditions. Consequently, the heat exchanges between the user's body and the environment outside the protective garment are prevented or greatly reduced.

[0004] A typical example is that relating to motorcycling suits or jackets, which are often made of leather or a material with limited breathability. A further example is that of skiing suits or jackets.

[0005] In order to favour the ventilation of the protective garment, and therefore the heat exchange between the external environment and the user's body, or vice versa, ventilation or air outlets are normally used, these consisting generally of a through-hole in the said protective garment. Said through-hole is often provided with a zip fastener so that a user is able to open or close the ventilation outlet depending on the body temperature and/or the environmental conditions.

[0006] In many activities, this solution is disadvantageous from many points of view.

[0007] In detail, in sports activities such as motorcycling or skiing which require the use of gloves together with the protective garment, the opening or closing of the zip in order to favour or prevent the heat exchange between the user's body and the external environment, or vice versa, is often difficult. In particular, the use of gloves makes it particularly difficult and complicated to operate the zip for opening/closing the ventilation outlet.

[0008] This difficulty, together with the concentration needed to drive a motorcycle and/or to ski downhill, exposes the user to the risk of falls and/or accidents in the case where the action of opening or closing the ventilation outlet must be performed without the user interrupting the activity.

[0009] Moreover, the conventional zip fasteners used in garments do not guarantee the impermeability of the garment. For this purpose, waterproof zip fasteners may be used, but these are costly.

[0010] Finally, the use of zips for opening/closing of the ventilation outlet increases the overall complexity of

the protective garments.

[0011] The present disclosure proposes providing a protective garment which is able to overcome the drawbacks mentioned above with reference to the prior art and/or achieve further advantages.

[0012] This is obtained by means of a protective garment and a method as defined in the respective independent claims. Secondary characteristics and particular embodiments forming the subject of the present disclosure are defined in the corresponding dependent claims.

[0013] The protective garment according to the present disclosure has a visible external surface and an internal surface adapted to face, in use, the body of a user. The protective garment further comprises a first protective garment portion and a second protective garment portion which define a ventilation opening. This ventilation opening is configured to place in communication the visible external surface and the internal surface. In other words, the ventilation opening is an opening, or substantially a through-hole, defined in the said protective garment, in particular between the first and second portions thereof. Preferably, the first and second portions of the protective garment are arranged on the visible external surface of the garment. Expressed in other words, the first and second portions are parts of the protective garment, preferably of its visible external surface, which define the ventilation opening. Expressed in yet other words, the first and second portions of the garment define the perimeter and the shape of the ventilation opening. According to the present disclosure, the protective garment further comprises a deformable element arranged opposite the ventilation opening, in the first portion of the protective garment. This deformable element is, in particular, configured to assume a first configuration, or closed configuration, and a second configuration, or open configuration. In detail, in the first configuration, or closed configuration, an air flow between said ventilation opening is substantially prevented, or hindered and wherein in said second configuration, or open configuration, of the deformable element, an air flow through said ventilation opening is allowed. In the first configuration or closed configuration, the deformable element is in a rest condition, and in said second configuration, or open configuration, said deformable element has an arch configuration designed to define said ventilation opening.

[0014] The term "arch configuration" is understood as meaning any curved configuration, or configuration which determines the formation of an opening obtained by means of the separating movement of the two portions.

[0015] It is to be understood that, in the context of the present disclosure, the dual condition may also be provided, where, in the open condition, the deformable element is flat and, in the closed condition, the deformable element is in the arch configuration. In this case, two elements may be provided, only one of which always has an arch shape, while the other element assumes an arch condition mating with the other element in order to close

the opening, and a - for example flat - condition in order to form the opening.

[0016] In other words, the ventilation opening and closure defined in the protective garment is adjusted by a deformable element, configured to keep the ventilation opening in a closed condition, in which the deformable element is at rest and in which an air flow between the said ventilation opening, or between the visible external surface and the internal surface, or vice versa, is prevented or substantially prevented, or in an open configuration, in which an air flow is allowed through the ventilation opening or, expressed differently, between the visible external surface and the internal surface, or vice versa.

[0017] Preferably, in said second configuration, or open configuration, said deformable element is in a deformed condition and, in said rest condition, said deformable element is in a substantially flat configuration and/or in a non-deformed condition. A simple movement involving displacement from a flat position into an arch position, and vice versa, is therefore performed.

[0018] The expression "deformable element" is understood as meaning an element which is able to pass from an undeformed rest condition, where it is for example substantially flat and allows the first portion to be kept against the second portion, and vice versa, into a deformed arch condition, by moving the first portion away from the other portion, and vice versa, wherein this second deformed condition may be brought back into the rest condition.

[0019] Even more particularly, said deformable element is configured to pass from said open configuration into a closed configuration by means of a pressing action on said deformable element from the arch configuration into the flat configuration in a direction towards said visible surface, and to pass from said closed configuration into an open configuration by means of a pulling action on the deformable element from the flat configuration into the arch configuration in a direction away from said visible surface.

[0020] In this way, opening and closing of the ventilation opening may be performed by a user by operating the deformable element. This operation, compared to the zip fasteners of the prior art, is simpler to perform, even if the user is wearing a pair of gloves. In fact there is no risk of the zip getting stuck.

[0021] According to a preferred aspect of the present disclosure, the first portion and the second portion of the protective garment are arranged in the visible external surface.

[0022] According to a further preferred aspect, in the first configuration, or closed configuration of the deformable element, the first portion of the protective element is parallel or substantially parallel to the second portion of the said protective garment. According to this aspect, in the second configuration, or open configuration, of the deformable element, the first portion of the protective garment is at least partially separated, or spaced, from the

second portion of the said protective garment, at least along a direction of opening of the ventilation opening. Preferably, according to this aspect, said direction of opening of the ventilation opening is a direction perpendicular, or substantially perpendicular, to the visible external surface of the protective garment.

[0023] Consequently, advantageously, opening and/or closing of the ventilation opening is performed by spacing, or separating, the first portion from the second portion of the protective garment. The deformable element in the second configuration, or open configuration, is configured to keep the first portion at least partially separated, or spaced, from the second portion, therefore keeping the ventilation opening in a condition where the passage of an air flow between the visible external surface and the internal surface is allowed or permitted. In other words, advantageously, the opening and closing of the ventilation opening is performed by simply spacing, or moving towards each other, the first portion of the protective garment and the second portion of the protective garment. The deformable element is then configured to keep the first portion close to, or separated from, the second portion of the protective garment. Advantageously, therefore, the user does not have to operate zips or other devices in order to operate the ventilation opening and allow, or prevent, or reduce an air flow between the visible external surface and the internal surface of the protective garment.

[0024] According to a preferred aspect of the present disclosure, the protective garment comprises a flap configured to cover at least partially the ventilation opening. According to this aspect, moreover, the deformable element is arranged in this flap. In other words, the ventilation opening is, when in use, covered by this flap which may be easily gripped by a user. Preferably, for this purpose, the flap is, according to a preferred aspect, fixed to the visible external surface of the protective garment. Advantageously, therefore, the opening and/or the closing of the ventilation opening is furthermore simplified, also in the case where the user is wearing a pair of gloves.

[0025] Preferably, according to a further aspect, the flap comprises a first layer and a second layer. The deformable element, according to this aspect, is interposed between said first layer and said second layer. Advantageously, therefore, the deformable element is not exposed to the atmospheric agents and the reliability of the said element is therefore increased. Furthermore, assembly of the protective element, and in particular the arrangement of the deformable element, is simplified.

[0026] According to a further preferred aspect of the present disclosure, the protective garment comprises a tab associated with said flap, wherein said tab is configured to allow a user to move the deformable element from the first configuration, or closed configuration, into the second configuration, or open configuration. In other words, this tab may be a protuberance of the flap, for example a fabric protuberance, which may further facilitate gripping by a user in order to move the deformable

element from the first configuration, or closed configuration, into the second configuration, or open configuration.

[0027] Preferably, according to a preferred aspect, at least in the first configuration, or closed configuration, of the deformable element, the flap is configured to cover at least partially, or be at least partially superimposed on the second portion of the protective garment. In other words, at least in the closed configuration of the deformable element, or of the ventilation opening, the flap associated with the first portion of the protective garment is at least partially superimposed on the second portion of the said protective garment. Consequently, advantageously, at least on said closed configuration of the deformable element, there is optimum insulation, both from the air and from the atmospheric agents, such as rain or snow, between the visible external surface and the internal surface of the protective garment.

[0028] According to an advantageous aspect of the present disclosure, the deformable element is a spring steel element. Advantageously, the spring steel element is able to keep the ventilation opening in the open or closed condition, and modification of this configuration is simple and immediate, by means of simple folding of the said deformable element. The spring steel element may have the form of a sheet and be configured to be normally in an arch position and to be arranged in a flat position when subject to an external stress.

[0029] The deformable spring steel element, since it is included in the flap, is prevented by the flap from coiling up fully onto itself and remaining in in the arch configuration.

[0030] In order to favour the arch configuration, in particular when spring steel is used, the deformable element is in the form of a sheet, i.e. a strip or plate. The flap is in fact a portion of the garment including two superimposed layers which are closed together so as to define a housing for the spring steel element, which preferably has a sheet-like shape.

[0031] The spring steel sheet moves from one position into the other in a substantially immediate manner.

[0032] The present disclosure relates furthermore to a method for ventilating a protective garment which comprises a step of providing in said protective garment a ventilation opening defined between a first portion and a second portion of said protective garment, wherein the ventilation opening is configured to place in communication a visible external surface and an internal surface of the protective garment. The method comprises a step of providing in the first portion a deformable element, opposite the ventilation opening, configured to assume a first configuration in which an air flow through the ventilation is prevented or hindered, and a second configuration in which said flow is allowed. The method furthermore comprises moving said deformable element from the first configuration into the second configuration, until said deformable element assumes an at least partially arch configuration.

[0033] In other words, the method involves opening a

ventilation opening of a protective garment by moving a deformable element. Advantageously, said deformable element is configured to keep the ventilation opening in a closed condition or in an open condition, depending on the configuration of the said deformable element.

[0034] According to a preferred aspect, the step of moving said deformable element from the first configuration into the second configuration is performed by separating, or at least partially spacing, the first portion from the second portion of the protective garment, along an opening direction of the ventilation opening. In other words, the opening of the ventilation opening, in order to allow an air flow between the external surface and the internal surface, is performed by moving away the first portion of the protective garment, in which the deformable element is present, from the second portion. This movement is performed along an opening direction, which is preferably perpendicular, or substantially perpendicular, to the visible external surface of the protective garment. Expressed yet differently again, the step of moving the deformable element from the closed configuration into the open configuration involves pulling the deformable element from the first configuration into the second configuration, or in a direction away from the second portion of the protective garment.

[0035] According to a further preferred aspect, the deformable element is inserted in a flap and a tab of the protective garment is associated with this flap. According to this aspect, the step of moving the deformable element from the first configuration into the second configuration is performed by pulling said tab along an opening direction of the ventilation opening. Consequently, opening of the ventilation opening for allowing an air flow between the visible external surface and the internal surface is facilitated.

[0036] According to a preferred aspect of the present disclosure, the method comprises a step of closing the ventilation opening which involves moving the deformable element from the second configuration into the first configuration, by pushing or pressing said element. Preferably, said step of pressing the deformable element is performed along an opening direction of the ventilation opening, towards the second portion of the protective garment. The closing step involves compressing the deformable element from the second configuration into the first configuration.

[0037] Consequently, the ventilation opening may be closed in a simple and effective manner, also in the case where the user is wearing gloves, by simply pushing, or pressing, the deformable element towards the second portion of the protective garment.

[0038] Further advantages, characteristic features and modes of use forming the subject of the present disclosure will become clear from the following detailed description of embodiments thereof, provided by way of a non-limiting example.

[0039] It is any case evident that each embodiment of the subject of the present disclosure may have one or

more of the advantages listed above; in any case it is not required that each embodiment should have simultaneously all the advantages listed.

[0040] Reference will be made to the figures of the attached drawings in which:

- Figure 1 shows a partial view of a protective garment comprising a ventilation opening according to one aspect of the present disclosure;
- Figure 2 shows a view of a ventilation opening, in which a deformable element is in an open configuration, according to one aspect of the present disclosure;
- Figure 3 shows a cross-sectional view of a deformable element inserted in a flap of a protective garment, according to one aspect of the present disclosure;
- Figure 4 shows a view, from above, of a deformable element according to one aspect of the present disclosure;
- Figure 5 shows a side view of a deformable element in a first configuration, or closed configuration, according to one aspect of the present disclosure;
- Figure 6 shows a side view of a deformable element in a second configuration, or open configuration, according to one aspect of the present disclosure.

[0041] With reference to the attached drawings, an embodiment of a protective garment is indicated by the reference number 100.

[0042] The expression "protective garment" is understood in the context of the present disclosure as meaning a garment, such as a jacket, a suit, for example for sports use, for example in the skiing or motorcycling sector. These garments are generally made of materials which are not breathable or have a limited breathability, for example leather, in order to ensure a greater protection for the user, in particular against abrasions.

[0043] With reference to the attached Figure 1, the protective garment 100 according to the present disclosure comprises a visible external surface and an internal surface adapted to face, in use, the body of a user. In other words, the internal surface is situated opposite the internal surface.

[0044] The protective garment 100 also comprises a ventilation opening 1 which is visible, for example, in Figure 2. For example, said ventilation opening 1 may be a through-opening in the protective garment.

[0045] In particular, the ventilation opening 1 is configured to place in communication the visible external surface and the internal surface, so that an air flow is able to flow from the outside of the protective garment 100 towards the inside thereof, or vice versa, in order, for example, to cool the body of a user.

[0046] In detail, the protective garment 100 comprises a first portion 10 of the protective garment 100 and a second portion 20 of the said protective garment 100, which define the said ventilation opening. In other words,

the first portion 10 and the second portion 20 are portions of the protective garment 100 which, for example, are arranged in the visible external surface thereof, and which define, between them, the ventilation opening 1.

[0047] Preferably, the first portion 10 and the second portion 20 of the protective garment 100 are arranged in the visible external surface of the said protective garment 100. Even more preferably, according to a preferred aspect, the first portion 10 is superimposed, or at least partially superimposed, on the second portion 20.

[0048] Preferably, the ventilation opening 1 is arranged on a front portion of the protective garment 100, namely a portion thereof arranged, in use, in the direction of travel, or advancing movement, of a user.

[0049] The protective garment 100 further comprises a deformable element 30, which is visible in the attached Figures 3 to 6.

[0050] In detail, the deformable element 30 is arranged opposite the ventilation opening 1, in the first portion 10 of the protective garment 100. In other words, the deformable element 30 is associated with the first portion 10 of the protective garment 100.

[0051] Moreover, the deformable element 30 is configured to assume a first configuration, or closed configuration, and a second configuration, or open configuration. Preferably, the first configuration, or closed configuration, corresponds to a condition in which the ventilation opening 1 is closed, while the second configuration, or open configuration, of the deformable element 30 corresponds to a condition in which the ventilation opening 1 is open.

[0052] In detail, and as can be seen in Figure 5, the deformable element 30, in the first configuration, or closed configuration, may be a plate-like or sheet-like element having a substantially flat or planar form.

[0053] With reference to Figure 6, the deformable element 30, in the second configuration, or open configuration, may instead assume an at least partially curved form. In this way, the deformable element 30 may keep the first portion 10 of the protective garment 100 at least partially spaced, or separated, from the second portion 20 of the said protective element 100.

[0054] In detail, in the first configuration, or closed configuration, of the deformable element 30, an air flow through the ventilation opening 1, namely between the visible external surface and the internal surface, or vice versa, is prevented or hindered. In the second configuration, or open configuration, of the deformable element 30 instead an air flow through the ventilation opening 1 of the garment, namely between the visible external surface and the internal surface, or vice versa, is allowed. In other words said deformable element 30 is configured to keep the ventilation opening 1 in an open configuration, where an air flow between the visible external surface and the internal surface is allowed, or in a closed configuration, where said air flow between the visible external surface and the internal surface is prevented or substantially prevented.

[0055] Expressed differently, depending on the configuration of the deformable element 30, an air flow through the ventilation opening 1, between the visible external surface and the internal surface, or vice versa, is allowed or prevented, or limited or hindered.

[0056] Preferably, according to one aspect of the present disclosure, the deformable element 30 is configured to keep the ventilation opening 1 in an open or closed condition without further constraints. In other words, once a user moves the deformable element 30 into the first configuration, or closed configuration, or into the second configuration, or open configuration, said deformable element keeps autonomously the ventilation opening 1 in the closed or open condition, respectively, without further action by the user.

[0057] Furthermore, in the first configuration, or closed configuration, the deformable element 30 is in a rest condition, while in the second configuration, or open configuration, the deformable element has an arch configuration designed to define the ventilation opening 1. In other words, in the closed configuration, the deformable element is in a planar, or flat, condition, in which the first portion 10 and the second portion 20 of the protective garment 100 are parallel or substantially parallel, so that there is not an opening configured for the passage of a ventilation air flow between the visible external surface and the internal surface of the protective garment 100. Differently, in the open configuration, the deformable element 30 is configured to assume an arch-like or curved configuration. In this configuration, the deformable element 30 is configured to space, or separate, the first portion 10 from the second portion 20 of the protective garment 100 so as to define the ventilation opening 1 and allow the passage of an air flow from the visible external surface to the internal surface, or vice versa.

[0058] More specifically, preferably, in the second configuration, or open configuration, the deformable element 30 is in a deformed condition, while in the first configuration, the deformable element 30 is in a rest condition, where said rest condition corresponds to a substantially planar configuration and/or to a non-deformed condition.

[0059] According to a preferred aspect of the present disclosure, the deformable element 30 is configured to pass from the second configuration, or open configuration, into the first configuration, or closed configuration, by means of a pressing action on the said deformable element 30. This pressing action is configured to allow conversion of the deformable element 30 from the arch configuration into the rest configuration, in a direction of movement towards the visible external surface, for example along the opening direction A.

[0060] Moreover, according to this aspect, the deformable element 30 is configured to pass from the first configuration, or closed configuration, into the second configuration, or open configuration, by means of a pulling action on the said deformable element 30. This pulling action allows conversion of the deformable element 30 from the flat rest configuration into the arch configuration,

in a direction away from the visible external surface, for example along the opening direction A.

[0061] According to one aspect of the present disclosure, the deformable element 30 is a spring steel element. Even more preferably, said deformable element 30 is a spring steel plate or bar-shaped element. In the context of the present disclosure, "spring steel" is understood as meaning a plate-shaped element made of steel which is elastically deformable and configured to assume a first configuration, or rest configuration, where said element is in a planar, or flat, configuration, and a second configuration, or elastically deformed configuration, or open configuration, in which said element is in a curved or arch-like configuration.

[0062] Preferably, the first configuration, or rest configuration, or closed configuration, of the deformable element 30, or elastically deformable element, is a stable configuration. In other words, in the absence of stresses, the elastically deformable element tends to remain in a planar or flat configuration. Preferably, moreover, the second configuration, or elastically deformed configuration, or open configuration, of the elastically deformable element 30 is an unstable or non stable configuration. Namely, the deformable element 30, or elastically deformable element, in the elastically deformed configuration tends to return into the first configuration, or rest configuration. Expressed in yet other words, the second configuration is a configuration from which the deformable element 30 tends to move towards the first configuration, or closed configuration.

[0063] Preferably, moreover, the deformable or elastically deformable element 30 made of spring steel is a form-memory element. In other words, preferably, the elastically deformable element 30 made of spring steel is an element configured to move from the first configuration, or rest configuration, or flat configuration, into the second configuration, or elastically deformed configuration, or curved or arch-like configuration, once stressed.

[0064] According to a preferred aspect of the present disclosure, in the first configuration, or closed configuration, of the deformable element 30, the first portion 10 of the protective garment 100 is parallel, or substantially parallel, to the second portion 20. In other words, in the first configuration, or closed configuration, of the deformable element 30, the visible external surface of the protective garment 100 is, in the region of the ventilation opening 1, a flat or substantially flat or continuous surface between the first portion 10 and the second portion 20 of the protective element 100. Expressed differently again, in the region of the ventilation opening 1, and in a closed configuration of the deformable element 30, there is a superficial continuity or a substantial superficial continuity, between the first portion 10 and the second portion 20, which define the said ventilation opening 1. Expressed yet differently again, when the deformable element 30 is in the first configuration, or closed configuration, the first portion 10 and the second portion 20 are aligned or completely superimposed, so that an air flow

cannot flow or may not substantially flow, between them, namely through the ventilation opening 1.

[0065] Moreover, according to this preferred aspect, in the second configuration, or open configuration, of the deformable element 30, the first portion 10 of the protective garment 100 is at least partially separated, or spaced, from the second portion 20 of the said protective garment 100, at least along a direction of opening A of the ventilation opening 1.

[0066] Preferably, the direction of opening A is a direction perpendicular, or substantially perpendicular, to the visible external surface of the protective garment 100. Consequently, advantageously, in the second configuration, or open configuration, of the deformable element 30, the first portion 10 of the protective garment 100 is protruding, or spaced, during use, along a direction of travel of the user, relative to the second portion 20 of the protective garment 100.

[0067] In other words, in the open configuration of the deformable element 30, the first portion 10 and the second portion 20 of the protective garment 100, which define the ventilation opening 1, are separated or spaced from each other. Advantageously, therefore, in this configuration an air flow through the ventilation opening 1 from the visible external surface 1 towards the internal surface, or vice versa, is possible.

[0068] According to a further preferred aspect of the present disclosure, the protective garment 100 comprises a flap 40. Preferably, the flap 40 is a portion of the protective garment 100, for example made of fabric or leather.

[0069] Preferably, the flap 40 is associated with the visible external surface of the protective garment 100. Even more preferably, the flap 40 is associated with the first portion 10 of the protective garment 100.

[0070] Said flap 40 is configured to cover at least partially the ventilation opening 1. According to this aspect, moreover, the deformable element 30 is arranged in this flap 40. Preferably, the flap 40 comprises a first layer, or top layer 41, and a second layer, or bottom layer 42 and the deformable element is arranged between said first layer, or top layer, 41, and said second layer, or bottom layer 42. Preferably, moreover, the flap 40 is configured to keep the deformable element 30, or elastically deformable element, made of spring steel, in the second position, or elastically deformed position, or open configuration of the latter. In other words, in a condition in which the elastically deformable element 30 is in the second configuration, or open configuration, or elastically deformable configuration, the flap 40 is configured so that the elastically deformable element 30 remains in this second configuration. In other words, the flap 40 is configured to make the second configuration of the elastically deformable element 30 stable. Expressed yet differently again, in the absence of stresses configured to move the elastically deformable element 30 from the second configuration into the first configuration, the flap 40 is configured to keep the elastically deformable element 30 in

the first configuration, or open configuration, or elastically deformed configuration.

[0071] In other words, the flap 40 is a pocket configured to contain the elastically deformable element 30. Said pocket, in a condition in which the elastically deformable element 30 is in the second configuration, or open configuration, or elastically deformed or curved configuration, is configured so as to keep said elastically deformable element 30 in this second configuration. In the presence of an external stress the flap 40 is furthermore configured to allow the elastically deformable element 40 to pass from the second configuration into the first configuration or rest configuration.

[0072] In detail, at least in the second configuration, or closed configuration, of the deformable element 30, the flap 40 is configured to cover at least partially, or be at least partially superimposed on, the second portion 20 of the protective garment 100. In this way, an air flow through the ventilation opening 1, from the visible external surface to the internal surface, is prevented or limited. In the second configuration, or open configuration, of the deformable element 30, instead, the flap 40 containing the deformable element 30 and associated with the first portion 10, is kept spaced, or separated, along the opening direction A of the ventilation opening 1, by the deformable element 30 so that an air flow may flow through the ventilation opening 1 from the visible external surface to the internal surface, or vice versa.

[0073] Preferably, according to one aspect of the present invention, the protective garment 100 comprises a tab 50 associated with the flap 40. Preferably, said tab 50 is a protrusion of the flap 40. Moreover, said tab 50 is configured to allow a user to move the deformable element 30 from the first configuration into the second configuration. For example, the tab 50 may be portion of fabric or leather associated with the flap 40 and configured to be taken hold of or gripped by a user in order to move the deformable element 30.

[0074] The present disclosure also relates to a method for ventilating a protective garment 100.

[0075] In the description of this method, elements of the protective garment 100 involved in the method and having the same function and the same structure as the elements described above retain the same reference number and are not described again in detail.

[0076] The method involves providing in the protective garment 100 a ventilation opening 1 defined between the first portion 10 and the second portion 20 of the protective element 100, wherein said ventilation opening 1 is configured to place in communication the visible external surface and the internal surface of the said protective garment 100.

[0077] The method also involves a step of providing, in the first portion 10 of the protective garment 100, a deformable element 30, opposite the ventilation opening 1, configured to assume a first configuration, or closed configuration, in which an air flow through the ventilation opening 1, between the visible external surface and the

internal surface, or vice versa, is prevented or substantially prevented, and a second configuration, or open configuration, in which an air flow through the ventilation opening 1, between the visible external surface and the internal surface, or vice versa, is allowed.

[0078] Furthermore, the method involves moving the deformable element 30 from the first configuration, or closed configuration, into the second configuration, or open configuration, so as to allow an air flow through the ventilation opening 1. This movement of the deformable element 30 from the closed configuration into the open configuration is performed until said deformable element 30 assumes an at least partially arch-like configuration.

[0079] According to a preferred aspect of the present disclosure, the step of moving the deformable element 30 from the first configuration into the second configuration, involves separating, or spacing, at least partially, the first portion 10 from the second portion 20 of the protective garment 100, at least along an opening direction A of the ventilation opening 1. Preferably, this spacing or separating movement is performed by moving the deformable element 30 along the opening direction A, therefore spacing the first portion 10 from the second portion 20 of the protective garment 100.

[0080] According to a further preferred aspect, the deformable element 30 is inserted in a flap 40 of the protective garment 100. Preferably, the flap 40 is associated with the first portion 10 of the protective garment 100.

[0081] Preferably, moreover, the protective garment 100 furthermore comprises a tab 50 associated with said flap 40. In this respect, the step of moving the deformable element 30 from the first configuration into the second configuration may be performed by pulling said tab 50 along the opening direction A of the ventilation opening 1.

[0082] Preferably, according to a preferred aspect, the method further comprises a step of closing the ventilation opening 1, which involves moving the deformable element 30 from the second configuration into the first configuration. This movement of the deformable element 30 involves compressing the said deformable element 30 from the second configuration, or open configuration, into the first configuration, or closed configuration, and is performed by pushing or pressing the said deformable element 30 towards the second portion 20 of the protective garment 100, for example along the opening direction A of the ventilation opening 1.

[0083] The subject-matter of the present disclosure has been described hitherto with reference to embodiments thereof. It is to be understood that other embodiments relating to the same inventive idea may exist, all of these falling within the scope of protection of the claims which are illustrated below.

Claims

1. Garment (100), preferably protective garment, having a visible external surface and an internal surface

adapted to face, in use, the body of a user, said garment (100) comprising a first portion (10) of said garment (100) and a second portion (20) defining a ventilation opening (1) configured to place in communication said visible external surface and said internal surface, said garment (100) further comprising a deformable element (30) associated with said first portion (10) of said protective garment (100), wherein said deformable element (30) is configured to assume a first configuration, or closed configuration for preventing or hindering the passage of a ventilation air flow, and a second configuration, or open configuration for allowing the passage of a ventilation air flow through said ventilation opening (1), and wherein in said first configuration or closed configuration, the deformable element (30) is in a rest condition, and in said second configuration, or open configuration, said deformable element (30) has an arch configuration designed to define said ventilation opening (1), wherein said deformable element (30) is a spring steel element.

2. Garment (100) according to claim 1, wherein in said second configuration, or open configuration, said deformable element (30) is in a deformed condition, and in said rest condition said deformable element is in a substantially flat configuration and/or in non-deformed condition, or vice versa.

3. Garment (100) according to claim 2, wherein said deformable element (30) is configured to pass from said second configuration, or open configuration, into said second configuration, or closed configuration, by means of a pressing action on said deformable element (30) from the arched configuration into the flat configuration in a direction towards said visible surface, and to pass from said first configuration, or closed configuration, into said second configuration, or open configuration, by means of a pulling action on the deformable element from the flat configuration into the arched configuration in a direction away from said visible surface.

4. Garment (100) according to any one of the preceding claims, wherein in said first configuration, or closed configuration of said deformable element (30), said first portion (10) of said garment (100) is parallel or substantially parallel to said second portion (20) of said protective garment (100), and wherein in said second configuration, or open configuration, of said deformable element (30), said first portion (10) of said garment (100) is at least partially separated, or spaced, from said second portion (20) of said garment (100) at least along an opening direction (A) of said ventilation opening (1).

5. Garment (100) according to any one of the preceding claims, comprising a flap (40) associated with said

visible external surface of said garment (100) and configured to cover at least partially said ventilation opening (1), wherein said deformable element (30) is arranged in said flap (40).

6. Garment (100) according to the preceding claim, wherein said flap (40) comprises a first layer (41) and a second layer (42), wherein said deformable element (30) is arranged between said first layer (41) and said second layer (42).
7. Garment (100) according to Claim 5 or 6, wherein in a condition in which said elastically deformable element (30) is in said second configuration, or open configuration, said flap (40) is configured to keep said elastically deformable element (30) in said second configuration, or open configuration.
8. Garment (100) according to any one of claims from 4 to 7, comprising a tab (50) associated with said flap (40), wherein said tab (50) is configured to allow a user to move said deformable element (30) from said first configuration, or closed configuration, into said second configuration, or open configuration.
9. Garment (100) according to any one of claims 4 to 8, wherein at least in said second configuration, or open configuration, of said deformable element, said flap (40) is configured to cover at least partially, or be at least partially superimposed on, said second portion (20) of said protective garment (100).
10. Garment (100) according to any one of the preceding claims, wherein said deformable element (30) in said second configuration, or open configuration, is configured to keep said first portion (10) of the garment (100) at least partially separated, or spaced, from said second portion (20) of the protective garment (100).
11. Garment (100) according to any one of the preceding claims, wherein said deformable element (30) is an element in the form of a sheet or plate.
12. Garment (100) according to any one of the preceding claims, wherein said first configuration, or closed configuration, of said deformable element (30) is a stable configuration, or a configuration in which the deformable element (30) tends to remain in the absence of stresses.
13. Garment (100) according to any one of the preceding claims, wherein said second configuration, or configuration, or open configuration, of said deformable element (30) is an unstable or non stable configuration, or a configuration from which the deformable element (30) tends to move towards said first configuration, or closed configuration.

14. Ventilation method for ventilating a garment (100) having an external visible surface and an internal surface adapted to face, in use, the body of a user, wherein said method comprises the following steps:

- providing in said garment (100) a ventilation opening (1) defined between a first portion (10) of said garment (100) and a second portion (20) of said garment (100) and configured to place in communication said visible external surface and said internal surface;
- providing in said first portion (10) of said garment (100) a deformable element (30) opposite said ventilation opening (1), wherein said deformable element (30) is configured to assume a first configuration, or closed configuration, in which an air flow through said ventilation opening (1) is prevented or hindered, and a second configuration, or open configuration in which an air flow through said ventilation opening (1) of said protective garment (100) is allowed, wherein said deformable element (30) is a spring steel sheet or spring steel strip or spring steel plate;
- moving said deformable element (30) from said first configuration, or closed configuration, into said second configuration, or open configuration until said deformable element (30) assumes an at least partially arched configuration.

15. Ventilation method according to the preceding claim, wherein the step of moving said deformable element (30) from said first configuration, or closed configuration, into said second configuration, or open configuration, involves separating, or spacing, at least partially said first portion (10) from said second portion (20) of said garment (100) at least along an opening direction (A) of said ventilation opening (1).

16. Method according to claim 14 or 15, wherein said deformable element (30) is inserted in a flap (40) of said garment (100) and wherein said garment (100) comprises a tab (50) associated with said flap (40), said step of moving said deformable element (30) from said first configuration, or closed configuration, into said second configuration, or open configuration, is carried out by pulling said tab along an opening direction (A) of said ventilation opening (1).

17. Ventilation method according to any one of claims from 14 to 16, comprising a step of closing said ventilation opening (1), wherein said closing step involves compressing said deformable element (30) from said second configuration, or open configuration, into said first configuration, or closed configuration, wherein said step of moving said deformable element (30) from said second configuration, or open configuration, into said first configuration, or closed configuration, involves pushing or pressing said de-

formable element (30) towards said second portion (20) of said protective garment (100).

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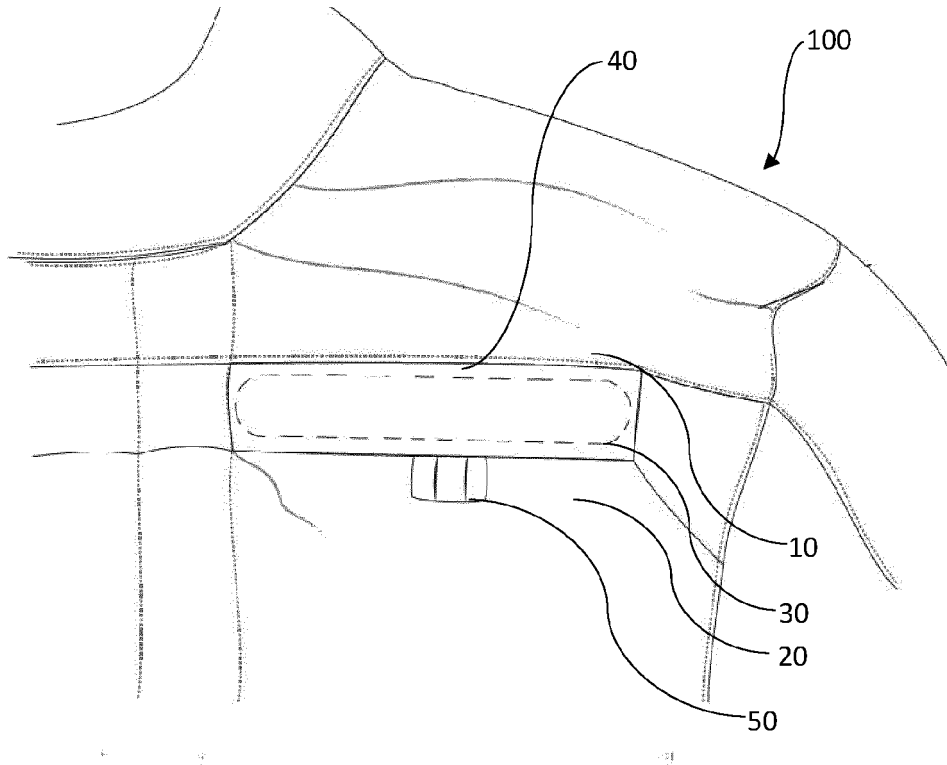


Fig. 1

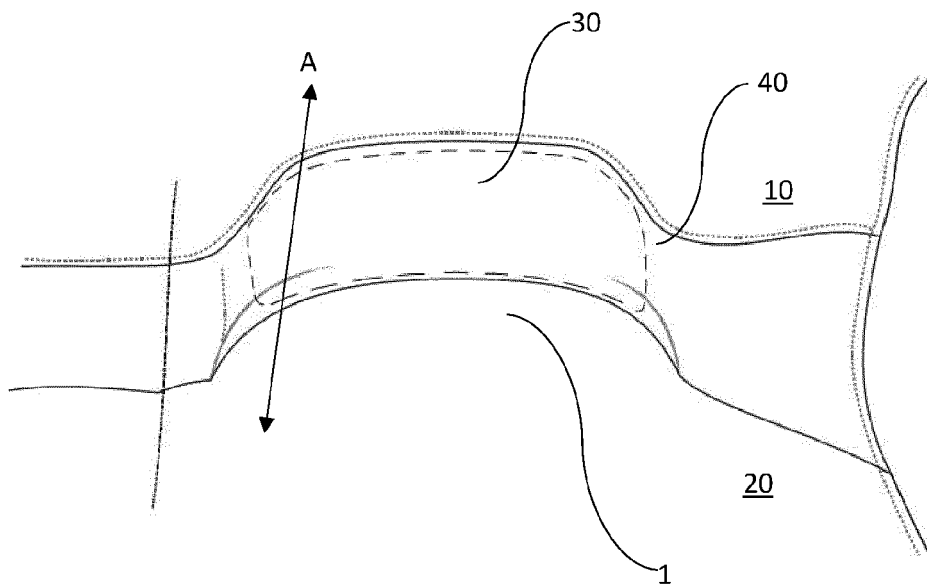


Fig. 2

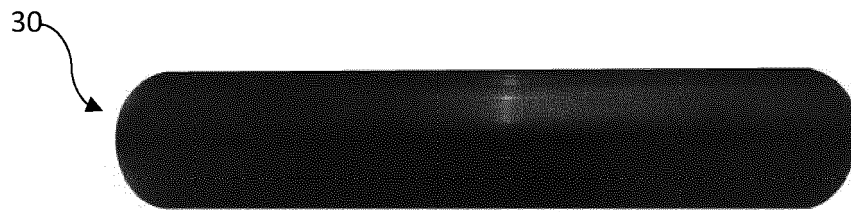
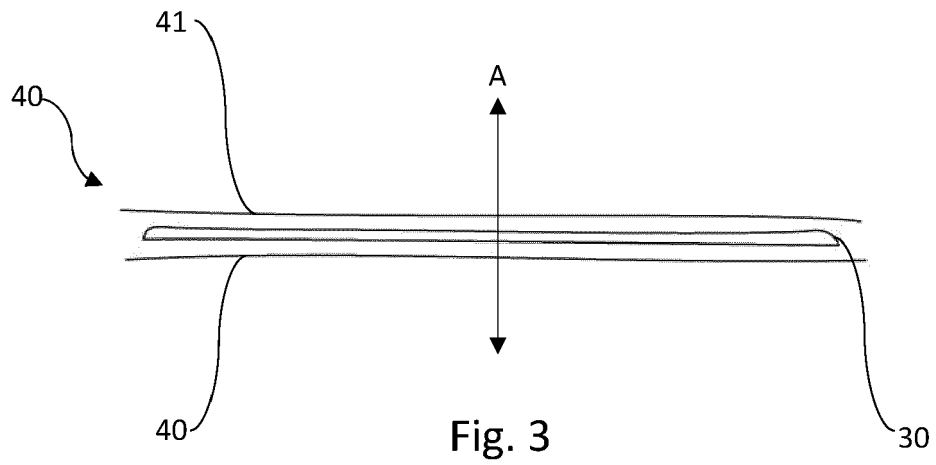


Fig. 4



Fig. 5

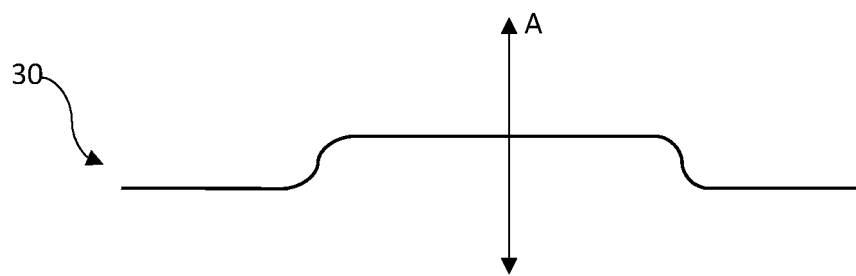


Fig. 6



EUROPEAN SEARCH REPORT

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			A41D A44C
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 3 November 2022	Examiner Dewaele, Karl
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

**ANNEX TO THE EUROPEAN SEARCH REPORT
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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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