

INSECT REPELLING GARMENT

Field Of Invention

5 The present disclosure generally relates to a garment which repels insect(s) and which provides adequate ventilation to a wearer.

Background

10 For individuals who frequent the outdoors (e.g., hikers, construction professionals and/or participants of outdoor sports), there could be a need for protection against insects (e.g., mosquitoes) to mitigate health risks (e.g., dengue which can be caused by mosquito bites).

15 Current solutions include pretreating clothing (e.g., vests) with insect repellent (e.g., microencapsulated permethrin insect repellent). Additionally, such pretreated clothing would generally be of certain thickness so as to impede insect bites. Such clothing can be generally termed as "insect repelling clothing".

20 It is generally contemplated that pretreatment with insect repellent would provide a first level of protection where insects are repelled from a wearer of such insect repelling clothing. Moreover, by virtue of the insect repelling clothing being of certain thickness, the wearer can be afforded a second level of protection in that with adequate thickness, insects can be prevented from biting through (i.e., the insect repelling clothing) and coming into direct contact with the wearer.

25 The present disclosure contemplates that whilst insect repelling clothing can protect a wearer from insect bites, wearer comfort may not be ideal. This is particularly so in locations where the climate can be hot and/or humid.

30 The present disclosure contemplates that there is a need to improve current insect repelling clothing by taking wearer comfort into consideration and without compromising on protection against insect bites.

Summary of the Invention

In accordance with an aspect of the disclosure, a garment capable of at least repelling insects from its wearer is provided. Specifically, the garment, when worn by the wearer, can be able to at least repel insects from the wearer.

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The garment can be fashioned in a manner so as to be capable of being worn by a wearer. The garment can include a body portion.

10 The body portion can include at least one net with insecticidal property. The body portion can further include at least one coupling portion which can be fashioned in a manner so as to be capable of removably coupling at least one auxiliary netting with insecticidal property to the body portion. Moreover, the body portion can be worn over the wearer body.

15 In one embodiment, the coupling portion(s) can be carried by the body portion. A coupling portion can correspond to a pocket fashioned to be capable of carrying the auxiliary netting(s). Specifically, the auxiliary netting(s) can be carried within the pocket. The pocket can, for example, correspond to a mesh carrier capable of carrying the auxiliary netting(s). Additionally, when an auxiliary netting is carried
20 within the mesh carrier, the auxiliary netting can be visually perceivable through the mesh carrier.

In another embodiment, the coupling portion(s) can be carried by the body portion. A coupling portion can correspond to an attachment part which is configurable to
25 detachably carry the auxiliary netting(s). An auxiliary netting can carry a mating portion which is capable of being detachably mated with the attachment part so that the auxiliary netting can be detachably coupled to the body portion when the mating portion mated with the attachment part.

30 Preferably, the auxiliary netting(s) can be carried by the coupling portion(s) in a manner such that the auxiliary netting(s) can be exposed to the environment in which the garment is worn by the wearer. In this regard, the auxiliary netting(s) can be considered to be carried by the coupling portion(s) in an exposed manner.

Specifically, the auxiliary netting(s) can be coupled to the body portion in an exposed manner so as not to inhibit insecticidal effectiveness of the auxiliary netting(s).

5 In one example, the garment can correspond to a vest. Specifically, the garment can correspond to a safety vest which can be worn by a construction worker at a construction work site. Preferably, when the vest is worn over the wearer body, the net(s) can substantially cover the body of the wearer.

10 In one variation, the garment can further include a hood portion. The hood portion can be coupled to the body portion. For example, the hood portion can be detachably coupled to the body portion. Additionally, the hood portion can include at least one netting with insecticidal property. Moreover, the hood portion can be lifted over the wearer's head.

15 Appreciably, when the garment is worn over the wearer body, the net(s) at the body portion can substantially cover the body of the wearer. Moreover, when the hood portion is lifted over the wearer head, the netting(s) at the hood portion can cover at least the wearer's ears.

20 In another variation, the garment can further include sleeve portions which can be coupled to the body portion. For example, the garment can include two sleeve portions (one sleeve portion which can be fitted over an arm of the wearer and another sleeve portion which can be fitted over another arm of the wearer). Each of the sleeve portions can include at least one netting with insecticidal property. In one
25 example, the sleeve portions can be detachably coupled to the body portion.

Appreciably, when the garment is worn over the wearer body, the net(s) at the body portion can substantially cover the body of the wearer. Moreover, when the sleeve portions are fitted over the wearer's arms, the nettings at the sleeve portions can
30 substantially cover the wearer's arms.

In accordance with another aspect of the disclosure, a method of producing an insect repelling garment is provided.

Specifically, the method can be associated with fashioning a garment in a manner so that the garment is able to repel insects from the wearer of the garment whilst allowing adequate ventilation so that wearer comfort is not compromised. The garment can include a body portion.

The method can include fashioning a body portion in a manner such that the body portion includes at least one net with insecticidal property and at least one coupling portion.

The method can further include fashioning the coupling portion(s) in a manner so as to be capable of removably coupling at least one auxiliary netting with insecticidal property to the body portion.

The body portion is capable of being worn over the wearer body and when worn by the wearer the garment is capable of at least repelling insects from the wearer.

Brief Description of the Drawings

Embodiments of the disclosure are described hereinafter with reference to the following drawings, in which:

Fig. 1a shows a garment fashioned to be capable of being worn by a wearer, according to an embodiment of the disclosure;

Fig. 1b shows the garment of Fig. 1a in further detail, according to an embodiment of the disclosure;

Fig. 2 shows a variation of the garment of Fig. 1a, according to an embodiment of the disclosure; and

Fig. 3 shows a method of producing an insect repelling garment in association with the garment of Fig. 1a, according to an embodiment of the disclosure.

Detailed Description

The present disclosure contemplates that comfort level of a wearer of current insect repelling clothing such as an insect repelling vest could be less than ideal due to lack of ventilation. Specifically, the present disclosure contemplates that a wearer of, for example, an insect repelling vest could experience discomfort (i.e., during hot and/or humid weather) due to lack of ventilation since such a vest could be made (e.g., with thick material) with the objective of impeding insect bites.

To address the issue of wearer discomfort, the present disclosure contemplates a garment fashioned to be capable of being worn by a person (i.e., a wearer). The garment can be made at least partially (or made entirely/substantially made entirely) from one or more nets with insecticidal property. Appreciably, the garment, according to an embodiment of the disclosure, can repel one or more insects from its wearer and, at the same time, allow its wearer adequate ventilation (i.e., through the net(s)).

An example of such a net is the Olyset™ Net developed by Sumitomo Chemical Group.

This will be discussed in further detail with reference to Fig. 1 to Fig. 3 hereinafter.

Referring to Fig. 1a, a garment 100 fashioned to be capable of being worn by a wearer 100a is shown, according to an embodiment of the disclosure. Specifically, the garment 100 can be shaped and dimensioned so as to substantially cover the wearer's 100a body 100b when worn by the wearer 100a. The garment 100 can, for example, correspond to a vest (e.g., a safety vest which can be worn by a construction worker in a construction work site). As will be discussed later in further detail with reference to Fig. 1b, the garment 100 can include a body portion 102, at least one net 102a with insecticidal property and one or more coupling portions 104.

Fig. 1b shows the garment 100 of Fig. 1a in further detail, according to an embodiment of the disclosure. Specifically, as shown in Fig. 1b, the garment 100 can include a body portion 102 and at least one coupling portion 104. Preferably, the coupling portion(s) 104 can be carried by the body portion 102.

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The body portion 102 can include one or more nets 102a with insecticidal property, according to an embodiment of the disclosure. The body portion 102 can, as an option, include a frame part 102b, according to an embodiment of the disclosure. The body portion 102 can, as a further option, include one or more rib members 102c, according to an embodiment of the disclosure.

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In one embodiment, at least a portion of the body portion 102 can be made from the net(s) 102a. Preferably, the body portion 102 can be made entirely from the net(s) 102a only. Alternatively, the body portion 102 can be only partially made from the net(s) 102a and remaining one or more portions of the body portion 102 not made from the net(s) 102a can correspond to one or more non-netting portions 102d.

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In another embodiment, the body portion 102 can be made based on a combination of the net(s) 102a and the frame part 102b. In one example, the net(s) 102a can be coupled to the frame part 102b. In a more specific example, the frame part 102b can correspond to an outlining perimeter of the garment 100 and can serve as a periphery/exterior (i.e., external boundary of the body portion 102) support structure for holding the net(s) 102a in place. In this regard, the garment 100 can be considered to be substantially made entirely from the net(s) 102a (i.e., with the frame part 102b corresponding to the only non-netting portion of the body portion 102 and the remaining parts of the body portion 102 being made from the net(s) 102a). Moreover, the frame part 102b can be made from luminous material. In this regard, the frame part 102b can correspond to an exterior luminous support frame which surrounds the net 102a.

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In yet another embodiment, the body portion 102 can be made based on a combination of the net(s) 102a and the rib member(s) 102c. In one example, the net(s) 102a can be coupled to the rib member(s) 102c. In a more specific example,

the rib member(s) 102c can correspond to an interior (i.e., within the outlining perimeter of the garment 100) support structure for holding the net(s) 102a in place. In this regard, the garment 100 can be considered to be substantially made entirely from the net(s) 102a (i.e., with the rib member(s) 102c corresponding to the only non-netting portion(s) of the body portion 102 and the remaining parts of the body portion 102 being made from the net(s) 102a). Moreover, the rib member(s) 102c can be made from luminous material. In this regard, the rib member(s) 102c can correspond to an interior luminous support frame which supports the net(s) 102a.

In yet a further embodiment, the body portion 102 can be made based on a combination of the net(s) 102a and both of the frame part 102b and the rib member(s) 102c. In this regard, the garment 100 can be considered to be substantially made entirely from the net(s) 102a (i.e., with the frame part 102b and the rib member(s) 102c corresponding to the only non-netting portions of the body portion 102 and the remaining parts of the body portion 102 being made from the net(s) 102a - the frame part 102b and the rib member(s) 102c being, respectively, an exterior support structure and an interior support structure holding the net(s) 102a in place). Moreover, as mentioned earlier, the frame part 102b can correspond to an exterior luminous support frame which surrounds the net(s) 102a and the rib member(s) 102c can correspond to an interior luminous support frame which supports the net(s) 102a.

In yet another further embodiment, the body portion 102 can be made based on a combination of the net(s) 102a, the non-netting portion(s) 102d and one or both of the frame part 102b and the rib member(s) 102c. As mentioned earlier, the frame part 102b and the rib member(s) 102c can be, respectively, an exterior support structure and an interior support structure holding the net(s) 102a in place. Specifically, the frame part 102b can, for example, correspond to an exterior luminous support frame which surrounds the net(s) 102a and the rib member(s) 102c can, for example, correspond to an interior luminous support frame which supports the net(s) 102a. Moreover, the net(s) 102a can, for example, be separated from the non-netting portion(s) 102d by one or more rib members 102c. Specifically, in one example, the net(s) 102a can be demarcated from the non-netting portion(s) 102d by one or more rib members 102c.

Earlier mentioned, the coupling portion(s) 104 can be carried by the body portion 102. For example, the coupling portion(s) 104 can be coupled to any of the net(s) 102a, frame part 102b, the rib member(s) 102c and the non-netting portion(s) 102d, or any combination thereof (i.e., the net(s) 102a, the frame part 102b, the rib member(s) 102c and/or the non-netting portion(s) 102d). In one example, one coupling portion 104 can be coupled to the net(s) 102a and another coupling portion 104 can be coupled to the frame part 102b. In another example, one set coupling portions 104 can be coupled to the net(s) 102a and another set of coupling portions 104 can be coupled to the non-netting portion(s) 102d. In yet another example, a coupling portion 104 can be coupled to one or both of the net(s) 102a and the non-netting portion(s) 102d.

The coupling portion(s) 104 can be fashioned in a manner so as to be able to removably couple at least one auxiliary netting (not shown) to the body portion 102. The coupling portion(s) 104 can, for example, be carried by the body portion 102. Moreover, the auxiliary netting(s) can have insecticidal property analogous to that of the net(s) 102a.

The present disclosure contemplates that the auxiliary netting(s) can be coupled to the body portion 102 in an exposed manner so as not to inhibit insecticidal effectiveness of the auxiliary netting(s). Specifically, when coupled to the body portion 102, an auxiliary netting can be exposed to the environment in which the garment 100 is worn by a wearer 100a. More specifically, a coupling portion 104 can be fashioned in a manner so as to be able to removably couple an auxiliary netting to the body portion 102 so that the auxiliary netting, when coupled to the body portion 102, can be exposed to wearer 100a environment when the wearer 100a wears the garment 100.

In one embodiment, a coupling portion 104 can correspond to a pocket which can be fashioned so as to be capable of carrying one or more auxiliary nettings. Specifically, at least one auxiliary netting can be carried within a pocket. More specifically, a coupling portion 104 can correspond to a pocket and at least one auxiliary netting

can be carried within the coupling portion 104. In one example, the pocket can correspond to a mesh type carrier (hereinafter referred to as “mesh carrier”) which can carry at least one auxiliary netting. Appreciably, when an auxiliary netting is carried within the mesh carrier, the auxiliary netting can be visually perceived although it is carried within the mesh carrier. Specifically, when an auxiliary netting is carried within the mesh carrier, the auxiliary netting can be visually perceived through the mesh carrier. Appreciably, by manner of carrying at least one auxiliary netting via a mesh carrier, the auxiliary netting(s) can be coupled to the body portion 102 and, further, be considered to be exposed to environment in which the wearer 100a wears the garment 100.

In another embodiment, a coupling portion 104 can correspond to an attachment part which can be configured to be capable of detachably carrying at least one auxiliary netting. An auxiliary netting can be configured to carry a mating portion. The attachment part can correspond to a base portion which is capable of detachably mating with the mating portion. In this regard, the combination of the base portion and the mating portion can form a fastener arrangement (e.g., Velcro based fastener). In this regard, an auxiliary netting can carry a mating portion which is capable of being detachably mated with an attachment part so that the auxiliary netting can be detachably coupled to the body portion 102 when the mating portion mated with the attachment part.

The present disclosure contemplates that coupling at least one auxiliary netting (i.e., in the aforementioned exposed manner) to the body portion 102 can enhance overall insecticidal property associated with the garment 100. Specifically, whilst the garment 100 has capability to repel insects due to the net(s) 102a alone (i.e., in view of the insecticidal property of the net(s) 102a), it is appreciable that capability of the garment 100 to repel insects can be enhanced in view of a combination of the net(s) 102a and the auxiliary netting(s) (i.e., in view of the insecticidal property of the net(s) 102a and the insecticidal property of the auxiliary netting(s)).

Earlier mentioned, the garment 100 can be shaped and dimensioned so as to substantially cover the wearer's 100a body 100b when the garment 100 is worn by the wearer 100a.

5 Specifically, the body portion 102 can be worn over the wearer's 100a body 100b. In this regard, when the garment 100 (e.g., a vest) is worn over the wearer body 100b, the net(s) 102a can cover at least a portion of the body 100b of the wearer 100a. Preferably, when the garment 100 (e.g., a vest) is worn over the wearer body 100b, the net(s) 102a can substantially cover the body 100b of the wearer 100a. Therefore,
10 when worn by the wearer 100a, the garment 100 can be capable of at least repelling insects from the wearer 100a.

The present disclosure contemplates that insect repelling clothing need not necessarily be designed to have adequate thickness for the purpose of impeding
15 insect bites. Specifically, based on the net(s) 102a, the garment 100 can function to repel insects so as to protect a wearer from insect bites and, at the same time, afford the wearer adequate ventilation so as to improve wearer comfort. This would be particularly helpful in locations where the climate can be hot and/or humid. Moreover, as mentioned earlier, by manner of coupling at least one auxiliary netting (i.e., in the
20 aforementioned exposed manner) to the body portion 102, overall insecticidal property associated with the garment 100 can be enhanced.

Fig. 2 shows an exemplary variation of the garment 100 of Fig. 1, according to an embodiment of the disclosure.

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Specifically, in one example, as shown in Fig. 2, the garment 100 can further include a hood portion 200. The hood portion 200 can be coupled to the body portion 102. For example, the hood portion 200 can be detachably coupled (e.g., by manner of separating zipper or Velcro based fastener) to the body portion 102.

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The hood portion 200 can include at least one netting 202 which is analogous to the aforementioned net 102a. Specifically, the hood portion 200 can include one or

more nettings 202 with insecticidal property. The hood portion 200 can be capable of being lifted over a wearer's 100a head.

Therefore, it is appreciable that when the garment 100 is worn over the wearer's 100a body 100b, the net(s) 102a at the body portion 102 can either cover at least a portion of the body 100b of the wearer 100a or substantially cover the body 100b of the wearer 100a. Moreover, when the hood portion 200 is lifted over the wearer's 100a head, the netting(s) 202 at the hood portion 200 can cover at least the wearer's 100a ears.

Fig. 3 shows a method 300 of producing an insect repelling garment, according to an embodiment of the disclosure. The method 300 can be associated with the aforementioned garment 100 of Fig. 1.

Specifically, the method 300 can be associated with fashioning a garment (i.e., the aforementioned garment 100 of Fig. 1) in a manner so that the garment is able to repel insects from the wearer 100a of the garment whilst allowing adequate ventilation so that wearer comfort is not compromised.

The method 300 will be discussed in the context of the earlier discussed garment 100 of Fig.1 hereinafter.

The method 300 can include a fashioning step 302 and a coupling step 304, according to an embodiment of the disclosure.

In regard to the fashioning step 302, the body portion 102 can be fashioned in a manner so that the body portion 102 can include the net(s) 102a with insecticidal property. Moreover, the body portion can be fashioned in a manner so as to carry the coupling portion(s) 104.

Furthermore, as an option, the body portion 102 can be further fashioned so that the body portion 102 can include one or both of the frame part 102a and the rib member(s) 102c.

As discussed earlier, in one embodiment, at least a portion of the body portion 102 can be made from the net(s) 102a. The body portion 102 can, in one example, be made entirely from the net(s) 102a only. The body portion 102 can, in another example, be made only partially from the net(s) 102a.

In another embodiment, as earlier discussed, the body portion 102 can be made based on a combination of the net(s) 102a and the frame part 102b.

In yet another embodiment, as earlier discussed, the body portion 102 can be made based on a combination of the net(s) 102a and the rib member(s) 102c.

In yet a further embodiment, as earlier discussed, the body portion 102 can be made based on a combination of the net(s) 102a and both of the frame part 102b and the rib member(s) 102c.

In yet another further embodiment, as earlier discussed, the body portion 102 can be made based on a combination of the net(s) 102a, the non-netting portion(s) 102d and one or both of the frame part 102b and the rib member(s) 102c.

In regard to the coupling step 304, the coupling portion(s) 104 can be fashioned in a manner so as to be capable of removably coupling at least one auxiliary netting with insecticidal property to the body portion 102. Specifically, one or more auxiliary nettings with insecticidal property can be coupled to the body portion 102 via the coupling portion(s) 104.

It should be further appreciated by the person skilled in the art that variations and combinations of features described above, not being alternatives or substitutes, may be combined to form yet further embodiments.

In the foregoing manner, various embodiments of the disclosure are described for addressing at least one of the foregoing disadvantages. Such embodiments are intended to be encompassed by the following claims, and are not to be limited to

specific forms or arrangements of parts so described and it will be apparent to one skilled in the art in view of this disclosure that numerous changes and/or modification can be made, which are also intended to be encompassed by the following claims.

- 5 In one example, the garment 100 can further include sleeve portions (not shown) which can be coupled to the body portion 102. For example, the sleeve portions can be detachably coupled (e.g., by manner of separating zipper or Velcro based fastener) to the body portion 102.
- 10 When the garment 100 is worn by a wearer 100a, the sleeve portions can be fashioned to be worn over (i.e., to cover) the arms of the wearer 100a. Specifically, the garment 100 can include two sleeve portions. One sleeve portion can cover an arm of the wearer 100a and another sleeve portion can cover another arm of the wearer 100a. Each of the sleeve portions can include at least one netting with
- 15 insecticidal property.

Appreciably, when the garment 100 is worn over the wearer's 100a body 100b, the net(s) 102a at the body portion 102 can, for example, substantially cover the body 100b of the wearer 100a. Additionally, the sleeve portions can be fitted over the

20 wearer's 100a arms so that the nettings at the sleeve portions can substantially cover the wearer's 100a arms.

Claim(s)

1. A garment fashioned to be capable of being worn by a wearer, the garment comprising:

5 a body portion which comprises at least one net with insecticidal property and at least one pocket fashioned to be capable of carrying at least one auxiliary netting with insecticidal property therein,

wherein the pocket corresponds to a mesh carrier capable of carrying the auxiliary netting,

10 wherein when the auxiliary netting is carried within the mesh carrier, the auxiliary netting is visually perceivable through the mesh carrier;

wherein the body portion is capable of being worn over the wearer body, and

wherein when worn by the wearer, the garment is capable of at least repelling insects from the wearer.

15 2. The garment as in claim 1 corresponding to a vest capable of being worn by the wearer,

wherein when the vest is worn over the wearer body, the net substantially covers the body of the wearer.

20 3. The garment as in claim 1, further comprising a hood portion which is coupled to the body portion, the hood portion comprising a netting with insecticidal property.

4. The garment as in claim 3,

25 wherein when the garment is worn over the wearer body, the net at the body portion substantially covers the body of the wearer, and

wherein the hood portion is capable of being lifted over the wearer head so that the netting at the hood portion covers at least the wearer's ears.

30 5. The garment as in claim 3, wherein the hood portion is detachably coupled to the body portion.

6. The garment as in claim 1, further comprising sleeve portions which are coupled to the body portion, each of the sleeve portions comprising a netting with insecticidal property.

- 5 7. The garment as in claim 6,
wherein when the garment is worn over the wearer body, the net at the body portion substantially covers the body of the wearer, and
wherein the sleeve portions are capable of being fitted over the wearer's arms so that the nettings at the sleeve portions substantially cover the wearer's arms.

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8. The garment as in claim 7, wherein the sleeve portions are detachably coupled to the body portion.

9. A method of producing an insect repelling garment which comprises a body portion, the method comprising:

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fashioning a body portion in a manner such that the body portion comprises at least one net with insecticidal property and at least one pocket to be capable of carrying at least one auxiliary netting with insecticidal property therein, wherein the pocket corresponds to a mesh carrier capable of carrying the auxiliary netting, wherein when the auxiliary netting is carried within the mesh carrier, the auxiliary netting is visually perceivable through the mesh carrier,

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wherein the body portion is capable of being worn over the wearer body, and wherein when worn by the wearer, the garment is capable of at least repelling insects from the wearer.

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