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(54) **Camouflage nets**

(57) A camouflage net (2) comprising at least one area (6) of a first net mesh having a first mesh dimension

and at least one area (8) of a second net mesh having a second mesh dimension, wherein the second mesh dimension is larger than the first.

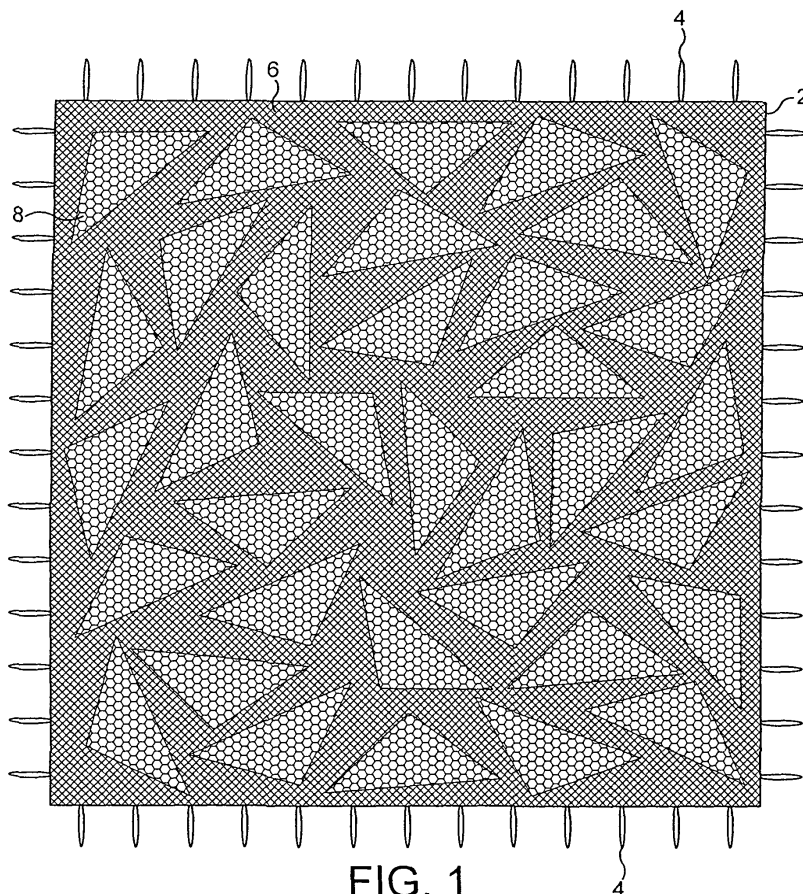


FIG. 1

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Description

[0001] The present invention relates to camouflage nets.

[0002] Camouflage nets are used, particularly by the military, to conceal equipment and personnel and to enable them to blend in with their surroundings.

[0003] Traditionally, camouflage nets have consisted of a net, comprising a plurality of intersecting net strands, to which a garnish is attached. The garnish is a coated fabric which may have visual and near infrared properties selected to match the terrain where the camouflage net is to be used. The coated fabric may be incised to create a three dimensional (3D) leafy effect, for example. In the latter case, the garnish can be applied to the net in patches to create the look of vegetation from a threat distance or as a complete cover (100%). The garnish may also have a printed or spray painted pattern if required. In addition, radar reflecting/absorbing properties can also be incorporated in the garnish if desired.

[0004] The nets may also comprise low emissivity fabrics which may be strategically placed to cover hot areas of a concealed object in order to produce a multi-spectral camouflage system.

[0005] The net mesh dimension in these traditional nets is typically in the region of 75 mm square. This can make the nets difficult to deploy since the mesh may snag on protruding corners of the object to be concealed.

[0006] In addition to the traditional 3D nets, two dimensional (2D) nets are also commonly used. These nets comprise a knitted or open mesh woven fabric with patterning. The mesh dimension on 2D nets is typically much smaller than that of conventional 3D nets. Radar absorbing or reflecting properties can be incorporated in the yarns or as a finishing process. By cutting down the line of sight between image and target the 2D net helps to reduce the thermal signature of the object. These nets are not particularly suited to woodland surroundings because of the lack of 3D effect although they are good in desert surroundings for concealing the thermal signature of an object. However, heat can build up within the supported structure due to the relatively small holes and this can make it uncomfortable for any crew members beneath the structure. Additionally, these 2D nets may have a garnish sewn into the knitted fabric to improve the 3D effect.

[0007] The visual appearance of such 2D nets is not as good as a patched net in woodland conditions. Similarly, the lack of texture makes such a 2D net not as good for the near and far infrared. However, the 2D nets are much easier to deploy than conventional nets as there is much less snagging due to the substantially smaller mesh size.

[0008] GB 738,469 discloses a 2D camouflage net comprising a small net mesh in which openings larger than the dimensions of the individual meshes are distributed over the net and are provided with a bridge

which separates each opening into two parts. The openings are said to break up the uniform appearance of the net and the bridge enables objects such as shrubs, grass or branches to be threaded through the openings, thereby improving the camouflage effect. The openings function as observation openings and are large enough to allow the barrel of a gun to be inserted through the net.

[0009] It is the object of the present invention to alleviate some of the problems of the prior art nets or at least to provide an alternative to them.

[0010] According to the present invention there is provided a camouflage net comprising at least one area of a first net mesh having a first mesh dimension and at least one area of a second net mesh having a second mesh dimension, wherein the second mesh dimension is larger than the first mesh dimension. The term "mesh dimension" as used herein refers to the size of a single element of the net mesh. The net mesh will commonly be a square mesh but other mesh shapes, such as rectangular, pentagonal, hexagonal, octagonal or any other suitable shape may be utilised.

[0011] Preferably, the first net mesh is a knitted or open mesh woven fabric. The second net mesh may also be a knitted or open mesh woven fabric. Most preferably, both the first and second net meshes are knitted or open mesh woven fabrics. Such fabrics typically have net mesh dimensions in the range from about 1 mm to about 40 mm, more preferably in the range from about 1 mm to about 10 mm. The mesh dimensions may be selected to suit the ground terrain in which the net is to be deployed. Different ground terrains will be more suited to one particular mesh dimension than others.

[0012] A net according to the present invention offers a number of advantages over existing 2D and 3D nets.

[0013] The first mesh dimension is approximately the same size as the mesh dimension found on conventional 2D nets. However, conventional 2D nets with small mesh dimensions suffer from the problem of poor ventilation and the resultant problem of heat build up, which can be very uncomfortable for any crew members beneath the net. The or each area of second net mesh has a larger mesh dimension and thus provides improved ventilation for the net. However, the mesh dimension of the or each area of second net mesh is still substantially smaller than the observation openings provided in the net of GB 738, 469, which are still large enough to snag on branches or corners of equipment. The combination of areas of first and second mesh dimension offers the benefit of the deployment capabilities of conventional 2D nets without the drawback of excessive heat build-up.

[0014] Preferably, the or each area of the second net mesh is surrounded by an area of the first net mesh. The or each area of second net mesh may suitably be triangular or rectangular in shape and preferably there are a plurality of areas, or patches, arranged in a "patchwork" configuration within the area of first net mesh. Any suitably shaped patches of second net mesh may be utilised

as required. It is not necessary for the patches to be regularly shaped and not all the patches need to be the same shape. The patches are preferably arranged in a non-regular pattern such that the net does not have a uniform appearance.

[0015] The net may suitably be provided with a camouflage garnish. The garnish may be a coated fabric having visual and near infrared properties selected to match the terrain where the net is to be used. For example, a pattern of greens and browns may be selected for use in woodland areas. In addition, the garnish may be incised to create a 3D leafy effect. Preferably the garnish is only provided on the or each area of second net mesh. This results in a net having improved visual performance as compared to conventional 2D nets. The areas of first net mesh in which no garnish is present resemble shadows when viewed from a threat distance. This enhances the visual appearance of the net by creating a much more natural appearance. The random arrangement of the patches of second net mesh results in a random arrangement of garnish which provides the net with a non-uniform appearance, helping the net to blend in with its surroundings. In fact, the net according to the present invention, offers the benefits of 3D nets with the improved handling and deployment of a conventional 2D net.

[0016] For a better understanding of the present invention reference will now be made, by way of example, to the accompanying figures in which:

Fig. 1 shows a schematic plan view of a camouflage net; and

Fig. 2 shows a schematic plan view of the net of Fig. 1 with a camouflage garnish.

[0017] Referring firstly to Fig. 1, this shows a plan view of a camouflage net 2. The net 2 is square in shape although it may conveniently be made in any shape to suit its intended purpose. A plurality of loops 4 are provided around the periphery of the net 2. These loops 4 may be used to attach the net 2 to the ground or to other structures or to join more than one net 2 together. The loops 4 may be flexible fabric loops or they may be manufactured from any other suitable material, which may be flexible or rigid depending on the desired function.

[0018] The net comprises an area 6 of a first net mesh within which a plurality of areas, or patches 8, of a second net mesh are arranged. The first net mesh is an open mesh woven fabric with a square mesh and a mesh dimension of approximately 1.5 mm. The patches 8 of the second net mesh are in the shape of isosceles triangles and are arranged in a non-uniform pattern within the area 6 of first net mesh. The patches 8 may conveniently be in any suitable shape. The patches may be regular or irregular in shape and they may all be the same shape or they may be provided in a variety of different shapes as desired. Regardless of shape, the

patches 8 are preferably randomly dispersed within the area 6 of first net mesh as this gives the net 2 a non-uniform appearance. The patches 8 of second net mesh have a mesh dimension of approximately 7.5 mm and the mesh is hexagonal in shape. The larger mesh dimension of the second net mesh aids the ventilation of the net 2 and prevents heat build-up below the net. The mesh shape and mesh dimensions are merely representative and the skilled person will understand that a wide variety of configurations are possible.

[0019] Although the net 2 shown in Fig. 1 has an area 6 in which patches 8 are arranged the invention is not limited to such a configuration. It is envisaged that any net utilising the combination of at least one area of a first net mesh and at least one area of a second net mesh, in which the first and second net meshes have different mesh dimensions, would offer improved performance over conventional 2D nets. Other configurations contemplated include, but are not limited to, alternating panels of first and second mesh and a single ventilation panel of second net mesh provided in a net consisting of predominantly first net mesh.

[0020] Referring now to Fig. 2, this shows the net of Fig. 1 with camouflage garnish 10 applied to the patches 8 of second net mesh. The garnish 10 is in the form of coated fabric that is incised to create a 3D leafy effect. Other suitable garnishes may also be applied to the net as required to match the terrain. The garnish 10 is coated, using known methods, in order to improve its visual and infrared properties. In addition, radar reflecting/absorbing properties may also be incorporated into the garnish 10. The visual performance of the net 2 is improved by providing the garnish 10 only on the patches 8 of second net mesh. A more natural appearance is created by breaking up the garnish 10 rather than providing 100% coverage. In addition, the area 6 of first net mesh, which is not covered by the garnish 10, resembles shadows when viewed from a threat distance.

[0021] A net according to the present invention offers advantages over conventional 3D and 2D nets. The net offers improved ventilation and improved visual sight performance when compared to conventional 2D nets. Furthermore, the net offers improved handling over conventional 3D nets as the open mesh fabric is less likely to snag on corners and the like.

Claims

1. A camouflage net comprising at least one area of a first net mesh having a first mesh dimension and at least one area of a second net mesh having a second mesh dimension, wherein the second mesh dimension is larger than the first mesh dimension.
2. A camouflage net according to claim 1, wherein the or each area of the second net mesh is surrounded by an area of the first net mesh.

3. A camouflage net according claim 2, wherein the or each area of second net mesh is triangular in shape.
4. A camouflage net according claim 2, wherein the or each area of second net mesh is rectangular in shape. 5
5. A camouflage net according to any preceding claim, wherein the net is provided with a camouflage garnish. 10
6. A camouflage net according to claim 5, wherein the camouflage garnish is only provided on the second net mesh. 15
7. A camouflage net according to any preceding claim, wherein the first mesh dimension is in the range from about 1 mm to about 10 mm.
8. A camouflage net according to any preceding claim, wherein the second mesh dimension is in the range from about 5mm to about 15mm. 20
9. A camouflage net substantially as hereinbefore described with reference to the accompanying drawings. 25

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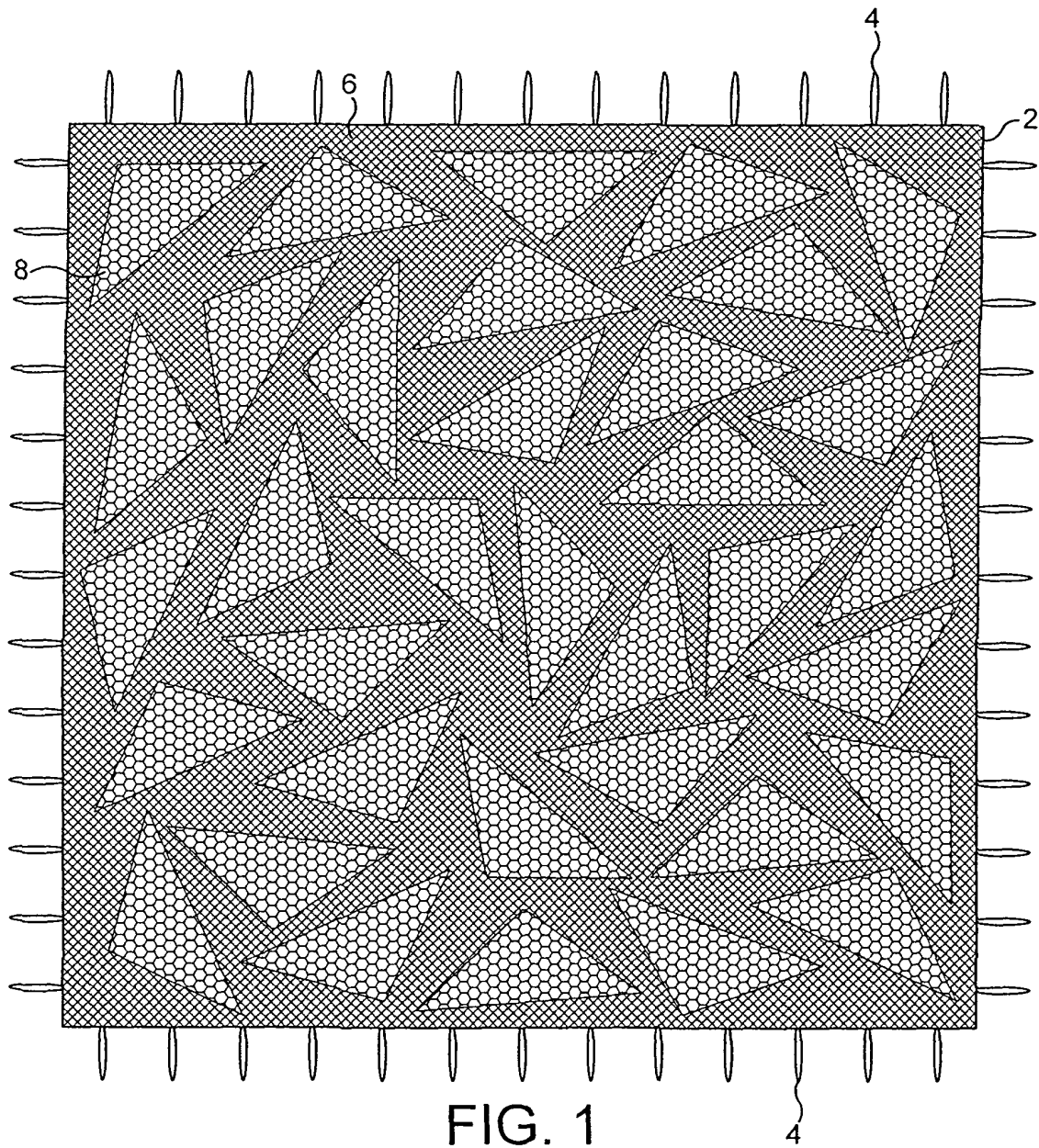
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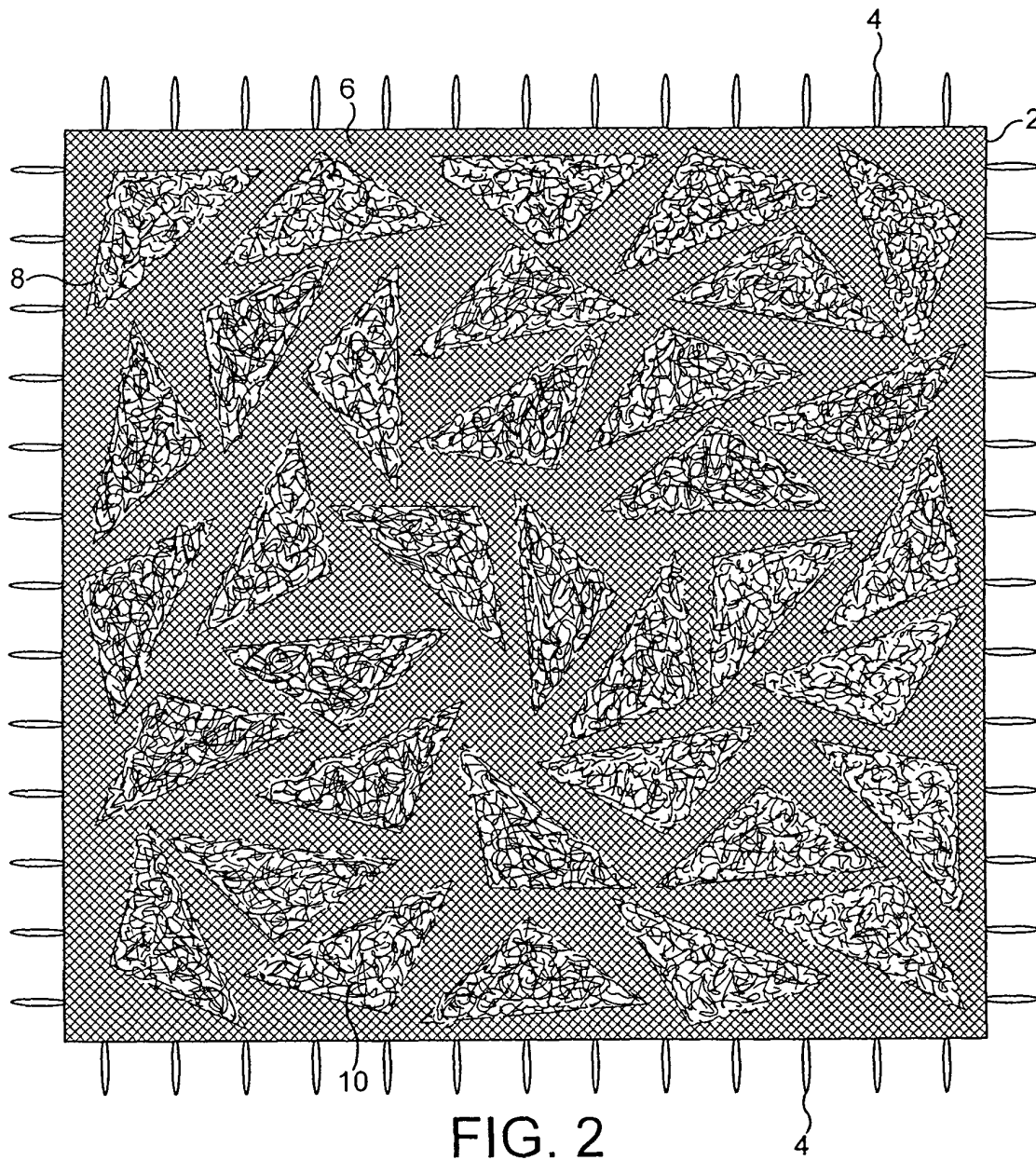


FIG. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 05 07 5928

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The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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Place of search		Date of completion of the search	Examiner
The Hague		10 October 2005	Van der Plas, J
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 05 07 5928

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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