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Declarations under Rule 4.17:

— *as to the identity of the inventor (Rule 4.17(i))*

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*

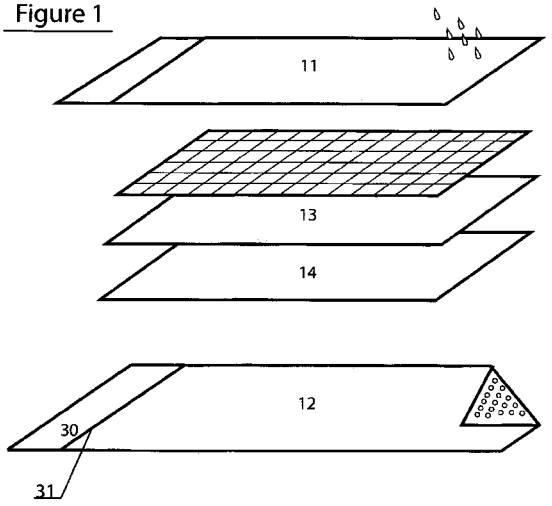
— *of inventorship (Rule 4.17(iv))*

Published:

— *with international search report (Art. 21(3))*

(54) **Title**: A YOGA MAT

Figure 1



(57) **Abstract**: A yoga mat has a top layer of non-slip absorbent microfibre for wicking away moisture from a user, and a bottom layer with a means of preventing the yoga mat from slippage on surfaces when in use, and at least one middle layer of fabric for padding and support sprayed or laminated with a non-toxic thermoplastic polyurethane (" TPU") membrane; the top and middle layers are compressed for non- movement and in order to prevent bunching when in use.

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A yoga mat

Field of the Invention

The invention relates to yoga mats and mats for exercise.

Background of the Invention

There has been an increase in the popularity of yoga as an exercise which stimulates health, wellbeing, elasticity, longevity and which assists in warding off disease.

Yoga in western society typically is undertaken in an indoor studio and practitioners use a combination of yoga mat and towel which are placed upon the floor surface or ground when practising. Yoga postures require quite vigorous exertion and practitioners generally perspire. The purpose of the yoga mat is primarily for support and to provide some degree of comfort to yogis when engaging in postures and stretches whereas the towel is primarily employed as a covering over the yoga mat to prevent moisture by way of perspiration from soaking into the yoga mat that is beneath it.

One problem with existing yoga mats is that they can become slippery when in use. Yoga mats commonly in use are manufactured from PVC or rubber composite so that when moisture is applied to their surface they become slippery. Other types of yoga mat can become saturated with moisture and over time may become unhygienic unless washed regularly.

A popular form of yoga developed under the Hatha yoga school, Bikram Yoga, is practiced in premises that have been heated to approximately body temperature or above. The practice of yoga in heated environments, also known as hot yoga, has been proven to provide practitioners with additional medical, psychological and postural benefits and this form of yoga is becoming increasingly popular amongst western yoga practitioners. It is a feature of hot yoga that practitioners perspire profusely when practising and the towels and mats upon which they practice become saturated with perspiration. This can lead to the floor surrounding the practitioner's mat and towel, in addition to the mat and towel themselves, becoming impregnated with moisture and the yoga mats becoming slippery which may be dangerous for some postures and uncomfortable for users. Yoga mats and towels which soak up perspiration require constant washing to ensure that they are hygienic and suitable for continued use.

Further, when in use, a towel placed upon a yoga mat tends to bunch up or crease when in use which is distracting for the practitioner, may be uncomfortable and can lead to instability of the limbs if the practitioner attempts a posture upon a bunched region of mat or towel. This may lead to injury.

Non-slip towels are known in the prior art. One such example is shown in Australian Patent No. 2004257627 and which is sold under the trade mark SKIDLESS by Yogitoes Inc. of Santa Monica, California. The SKIDLESS towel is designed to be used in conjunction with a yoga mat and in use rests upon a yoga mat which is placed upon a ground surface. In use it has been shown that the SKIDLESS absorbent towel, despite its claimed non-slip properties is still susceptible to bunching. Further, that such bunching will include the mat beneath the towel upon which it is placed. The SKIDLESS towel and similar non-slip towels for use by yoga practitioners have not been designed for use in isolation and cannot effectively be used comfortably without also using a separate yoga mat. This can be inconvenient.

It is also the case that hot yoga studios require practitioners to use both a mat and towel in their practice.

Yoga mats that are manufactured from polyvinyl chloride ("PVC") may be harmful to the practitioner's health when used in heated environments as PVC in its flexible form is made from 43% carbon and 57% chlorides which when heated are toxic, further, heating PVC may produce dioxins which have been shown to be carcinogenic. It would be advantageous therefore to provide a yoga mat that was manufactured from materials that excluded toxic plastics such as PVC.

It would be useful therefore to provide an improved yoga mat which overcame the problems associated with retention of excessive moisture by incorporating a microfiber material that wicked moisture away from the yogi, such features being hitherto used only in towels.

It would also be useful to provide a yoga mat that provided additional comfort and support for the user by combining the features of towel and yoga mat together.

It would be useful and commercially advantageous to provide a yoga mat that could be manufactured promoted and sold as a single article as opposed to two separate articles – towel and mat.

It would be useful to provide an improved yoga mat that could be easily cleaned.

It would be advantageous to provide an improved yoga mat that offered some advantages over those yoga mats available amongst the prior art, which overcame at least some of the problems of the prior art devices and which offered a commercially viable alternative to existing devices.

Accordingly there is provided a yoga mat comprising a top layer of non-slip absorbent microfibre for wicking away moisture from a user; and

a bottom layer with a means of preventing the yoga mat from slippage on surfaces when in use; and

at least one middle layer of fabric for padding and support sprayed or laminated with a non-toxic thermoplastic polyurethane ("TPU") membrane;

the top and middle layers are compressed for non-movement and in order to prevent bunching when in use.

In preferred embodiments of the invention the means of preventing the bottom layer from slippage on floor surfaces when in use includes silicone or other non-toxic, non-allergenic compound.

In especially preferred embodiments, the yoga mat includes a flap section comprised of non-slip absorbent microfibre and without means of preventing the flap from slippage on ground surfaces to provide additional support and leverage to the user in certain postures or use as a head or neck support.

In some embodiments the flap section can incorporate an image of an animal which corresponds to the name of a yoga pose.

In some other preferred embodiments the yoga mat may incorporate an image of an animal or other image which represents a spirit guide or which has spiritual meaning to the user or which serves to focus or direct the mind of the user.

In other preferred embodiments of the invention the silicone or other non-toxic, non-allergenic compound is configured into a variety of shapes for

greater grip on the ground or surface upon which the yoga mat is placed when in use.

In other preferred embodiments the yoga mat has semi-rigid stitching around its perimeter.

In other preferred embodiments the yoga mat has water resistant material affixed around its perimeter for retaining moisture within the mat.

There is also provided a yoga mat comprising a top layer of non-slip absorbent microfibre for wicking away moisture from a user; and

a bottom layer with a means of preventing the yoga mat from slippage on surfaces when in use; and

a plurality of middle layers of fabric for padding and support at least one of which is sprayed or laminated with a non-toxic thermoplastic polyurethane ("TPU") membrane;

the top and middle layers are compressed for non-movement and in order to prevent bunching when in use.

In preferred embodiments of the invention the yoga mat is made from materials that exclude polyvinylchloride ("PVC") or other toxic materials.

There is also provided a yoga mat with reference to the accompanying drawings and/or examples.

Brief Description of the Drawings/Figures

Figure 1 is an exploded view of the multiple layers from which the yoga mat is constructed.

Figure 2 is an exploded view of an alternative embodiment of the mat.

Figures 3, 4 and 5 show perspective views of alternative configurations of the non-slip means on the bottom layer of the mat.

Figure 6 shows a perspective view of the mat indicating the flap section.

Figure 7 is an exploded view with flap section on top and bottom layers.

Best Mode and Other Embodiments of the Invention

Yoga practitioners typically use both a yoga mat and a towel when practising stretches and postures. Non-slip towels and mats that are presently available do not overcome the problems associated with excessive moisture

retention, bunching of material when in use and the inconvenience of needing to use two separate articles for comfortable practice.

In use, particularly when used in a heated or humid environment, yoga mats become very slippery which may be dangerous and/or uncomfortable for the user.

An improved yoga mat 10 has a top layer 11 of non-slip absorbent microfibre material for wicking away moisture from the user. The top layer 11 material is durable, anti-bacterial, odour free, hypo allergenic fabric which is preferably resilient to repeated washing and drying. The mat 10 has a bottom layer 12 of equivalent dimensions to the top layer 11 and has incorporated into or upon it a means of preventing the yoga mat from slippage on floor surfaces when in use. The non-slip means 20 is included for additional stability and non-slip qualities apart from those which the material of the top and bottom layers 11, 12 exhibit. This also assists to improve the safety and stability of the practitioner in use and injury prevention.

The non-slip means 20 is preferably made of a non-toxic, non-allergenic compound such as silicone although other materials may be suitable provided such materials have the necessary non-slip qualities. The non-slip means 20 can be configured in any suitable manner on the bottom layer 12 for contact with surface upon which the mat 10 is placed including, by way of non-limiting example the configurations shown in Figures 3, 4 and 5 which may improve the grip of the bottom layer 12 on the ground or surface upon which the yoga mat is placed when in use.

Figures 3, 4 and 5 show perspective views of alternative configurations of the non-slip means on the bottom layer indicated as 20a, 20b and 20c. Those skilled in the art will recognise that other configurations of the non-slip means 20 are possible without departing from the scope of the invention.

The yoga mat 10 is made from a number of highly absorbent cotton and microfibre blended materials. The microfibre material should be soft and comfortable to lie upon when in use. Preferably the microfibre exhibits anti-bacterial properties and is non-allergenic.

The top layer 11 is not only slip resistant, it also wicks away all the excess moisture from the practitioner's body creating a more enjoyable, comfortable, less distracting yoga practice.

The mat 10 also has at least one middle fabric layer which provides padding and support for the mat 10. Preferably, the yoga mat 10 incorporates a plurality of middle layers 13, 14, 15 as is indicated in Figure 1. Central layer 13 is non-toxic thermoplastic polyurethane ("TPU") membrane which is water resistant and is surrounded by a pair of fabric layers 14, 15 which can be made of cotton or cotton/polyester blend which are bonded to the central layer 13 and which provide padding and support for the mat 10. Other materials may be used without departing from the scope of invention. Many forms of TPU membrane exist and are readily available commercially. TPU membranes are known for their breathability and waterproof properties.

Alternative embodiments of the invention, for example that shown in Figure 2 may incorporate a single layer of fabric 16 for comfort and support which is sprayed or laminated with TPU or similar compound for enhancing the water resistant properties of the middle layer and the yoga mat overall. Figure 2 shows middle TPU layer 17 which can be laminated onto middle fabric layer 16.

Other alternative embodiments of the yoga mat of the present invention may incorporate a plurality of middle layers, preferably of non-allergenic cotton, at least one of which has been sprayed with TPU or similar compound or which has a TPU laminate applied to one side of the fabric.

In some embodiments the fabric layer which has been treated with TPU is sewn or heat compressed upon a second fabric layer which provides additional comfort and support for the user. The layers can be sewn together using a grid system which assists in drawing moisture towards the centre of the yoga mat as is seen on layers 15 and 16.

The layers 11, 12, 13, 14 and 15 of Figure 1 are machine compressed to form a single yoga mat which prevents bunching of component parts when in use. In some embodiments the layers may be sewn together. Moisture is trapped between the layers 11, 12, 13, 14, 15 so that it does not leak on to the floor. This improves the sanitary conditions in which yoga can be practised. The layer system assists in preventing perspiration from previous yoga practitioners absorbing through the mat.

As indicated in Figure 6, the yoga mat 10 has a flap section 30 defined by a seam 31 which may be formed from top layer 11 and bottom layer 12 only

and does not include non-slip means 20 upon the bottom layer portion. The flap section 30 can be used to provide additional support or traction to the user when engaged in certain postures (for example, "rabbit" pose or "Sasangasana") or may be rolled up or folded for use as a head or neck support. Alternatively the flap section 30 can be made solely of the same non-slip absorbent microfibre that is used for top layer 11 of the yoga mat 10.

The flap section 30 can be sewn to the mat, may be heat pressed onto it or can be integrally formed with the top layer 11 or bottom layer 12 according to the most economical manner of construction. One embodiment is indicated in Figure 7. Preferably the material of the top layer 11 is used for the flap section 30 in light of its non-slip absorbent properties.

The microfibre fabric from which the top layer 11 and bottom layer 12 are manufactured can be impregnated or coated with compounds having properties similar to silver salt which can improve the properties of the mat such as resilience to multiple washing and/or anti-bacterial or anti-microbial properties. Preferably non-allergenic and non-toxic compounds are used.

It is not essential that top layer 11 and bottom layer 12 be manufactured of the same grade of microfibre as the bottom layer 12 will not come into contact with the limbs and body of the user. Bottom layer can be manufactured of a lower quality material which may decrease manufacturing costs.

The middle fabric layer can be sprayed with TPU or can be laminated with a TPU membrane. Alternatively, a separate and distinct TPU membrane layer may be employed to enhance the water resistant characteristics of the yoga mat 10.

TPU membrane layer 13 can include other water-resistant materials provided that such materials are non-toxic hospital grade which may be sprayed on or compressed by machine.

It will be recognised that the mat of the present invention is not limited to use as a yoga mat only and that it is also suitable for use by dancers, gymnasts and other athletes. The mat 10 may be configured in a range of sizes for use by a single person or for use by multiple persons at once.

The mat is also suitable for use by health practitioners such as chiropractors, masseurs, remedial therapists and other medical and health providers.

The mat may be adapted for use in hospital settings, as bedding covers for nursing mothers, and is particularly suitable for use as an absorbent change mat for small babies and toddlers.

The mat can be used as a car seat cover for athletes, swimmers or surfers to prevent moisture ruining car seats after vigorous exercise or getting wet.

The usual shape of a yoga mat is rectangular however it will be recognised that circular, square, triangular or other shaped mats may be provided without departing form the scope of invention.

The materials used to manufacture the yoga mat should preferably be ecologically friendly and should be made of non-toxic materials. The most common form of yoga mat is manufactured from polyvinyl chloride ("PVC") which is known to be toxic when heated. The use of PVC based yoga mats in heated environments may lead to the release of dioxins which are known to be potentially carcinogenic. The yoga mat of the present invention is specifically designed to exclude the use of toxic compounds such as PVC which may cause harm and defeat the healthy and beneficial purposes of yoga.

In order to ensure extra stability for practitioners when in use, the layers 11, 12, 13, 14, 15, 16 of fabric are combined using compression eliminating any bunching or movement of the fabric which allows for proper stability for joint support.

Traditionally, yoga practitioners did not use any form of mat but rather a piece of cloth or most likely practised in direct connection to the earth or the floor. Since its introduction to western society the use of yoga mats has become the norm. Yoga mats made from rubber or PVC exhibit sponginess and have a degree of give in the materials when a yogi practises on the mat. This movement can lead to a lack of stability in a posture that could potentially cause injury. The yoga mat of the present invention is designed so as to minimise the amount of give or compression beneath the limbs of the yoga practitioner.

The flap section 30 incorporates a symbol, typically an animal, which corresponds with a particular yoga pose. For example "rabbit pose". Alternative animals may be used to represent any number of yoga poses, for example, "camel pose", "tortoise pose", "eagle pose" and so forth. The symbol or animal image may have special significance to the practitioner and may be incorporated into the flap section 30 or located elsewhere on the yoga mat 10 to assist to focus or direct the practitioner's attention to various aspects of practice, ethical and/or sustainable philosophical concepts or symbolism. Yoga practice is known to enhance the connection between mind and body or spirit and physicality. Using symbols, animal images or other suggestive icons may assist to improve the experience of the yoga practitioner.

Alternative configurations of the above are possible according to the user's requirements.

Those skilled in the art will appreciate that there are a variety of applications for which the present device is well suited.

Those skilled in the art will also appreciate that the method of construction herein described may be adapted according to the user's requirements without departing from the scope of the invention.

What is claimed is:

1. A yoga mat comprising a top layer of non-slip absorbent microfibre for wicking away moisture from a user; and
a bottom layer with a means of preventing the yoga mat from slippage on surfaces when in use; and
at least one middle layer of fabric for padding and support sprayed or laminated with a non-toxic thermoplastic polyurethane ("TPU") membrane;
the top and middle layers are compressed for non-movement and in order to prevent bunching when in use.
2. The yoga mat of claim 1 wherein the means of preventing the bottom layer from slippage on floor surfaces when in use includes silicone or other non-toxic, non-allergenic compound.
3. The yoga mat of claim 1 or 2 wherein the mat includes a flap section comprised of non-slip absorbent microfibre and without means of preventing the flap from slippage on ground surfaces to provide additional support and leverage to the user in certain postures or use as a head or neck support.
4. The yoga mat of claim 3 wherein the flap section incorporates an image of an animal which corresponds to the name of a yoga pose.
5. The yoga mat of any of the preceding claims which incorporates an image of an animal or other image which represents a spirit guide or which has

spiritual meaning to the user or which serves to focus or direct the mind of the user.

6. The yoga mat of any of the preceding claims wherein the silicone or other non-toxic, non-allergenic compound is configured into a variety of shapes for greater grip on the ground or surface upon which the yoga mat is placed when in use.

7. The yoga mat of any of the preceding claims having semi-rigid stitching around the perimeter of the yoga mat.

8. The yoga mat of any of the preceding claims wherein the yoga mat has water resistant material affixed around its perimeter for retaining moisture within the mat.

9. A yoga mat comprising a top layer of non-slip absorbent microfibre for wicking away moisture from a user; and
a bottom layer with a means of preventing the yoga mat from slippage on surfaces when in use; and
a plurality of middle layers of fabric for padding and support at least one of which is sprayed or laminated with a non-toxic thermoplastic polyurethane ("TPU") membrane;
the top and middle layers are compressed for non-movement and in order to prevent bunching when in use.

10. The yoga mat of any of the preceding claims which is made from materials that exclude polyvinylchloride or other toxic materials.

11. A yoga mat substantially as hereinbefore described with reference to the accompanying drawings and/or examples.

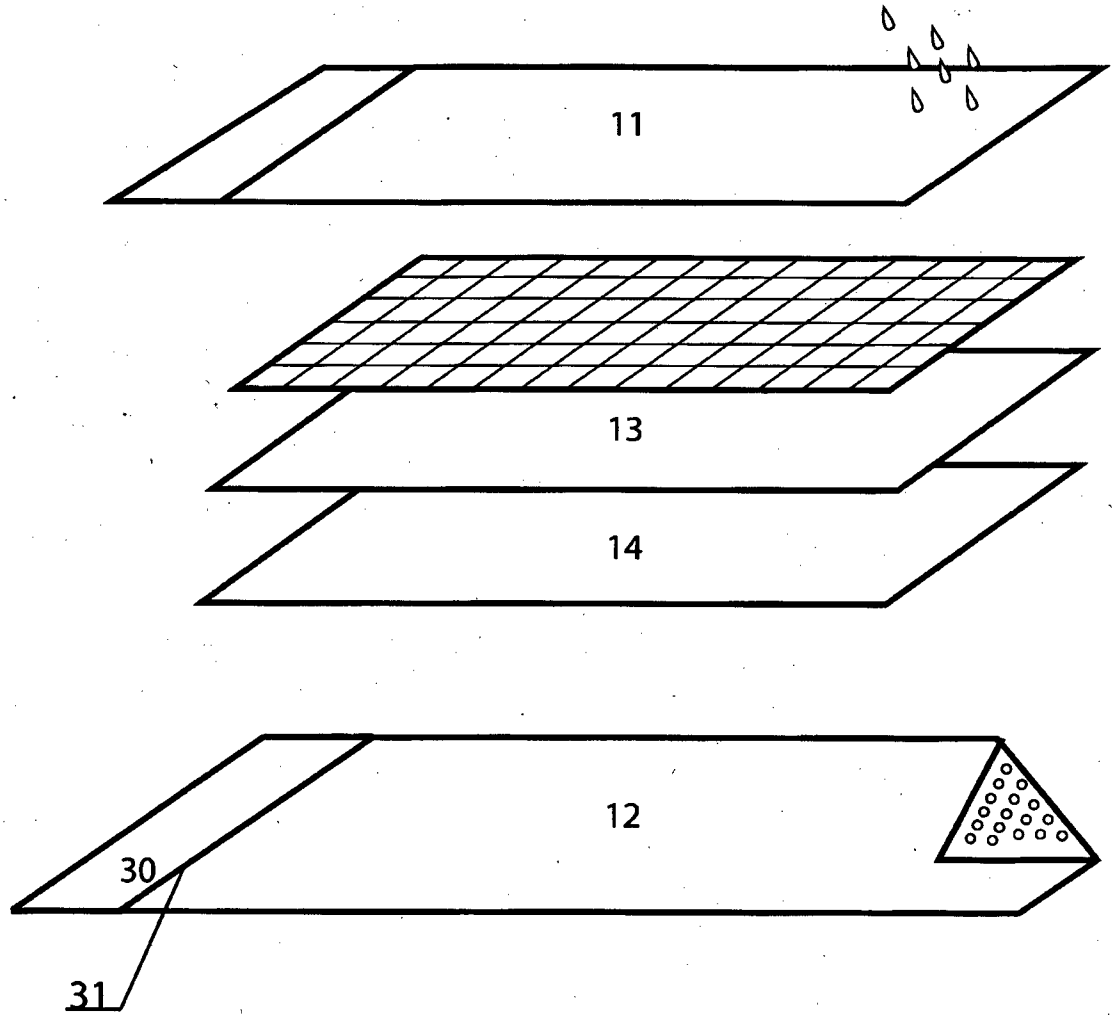

Figure 1

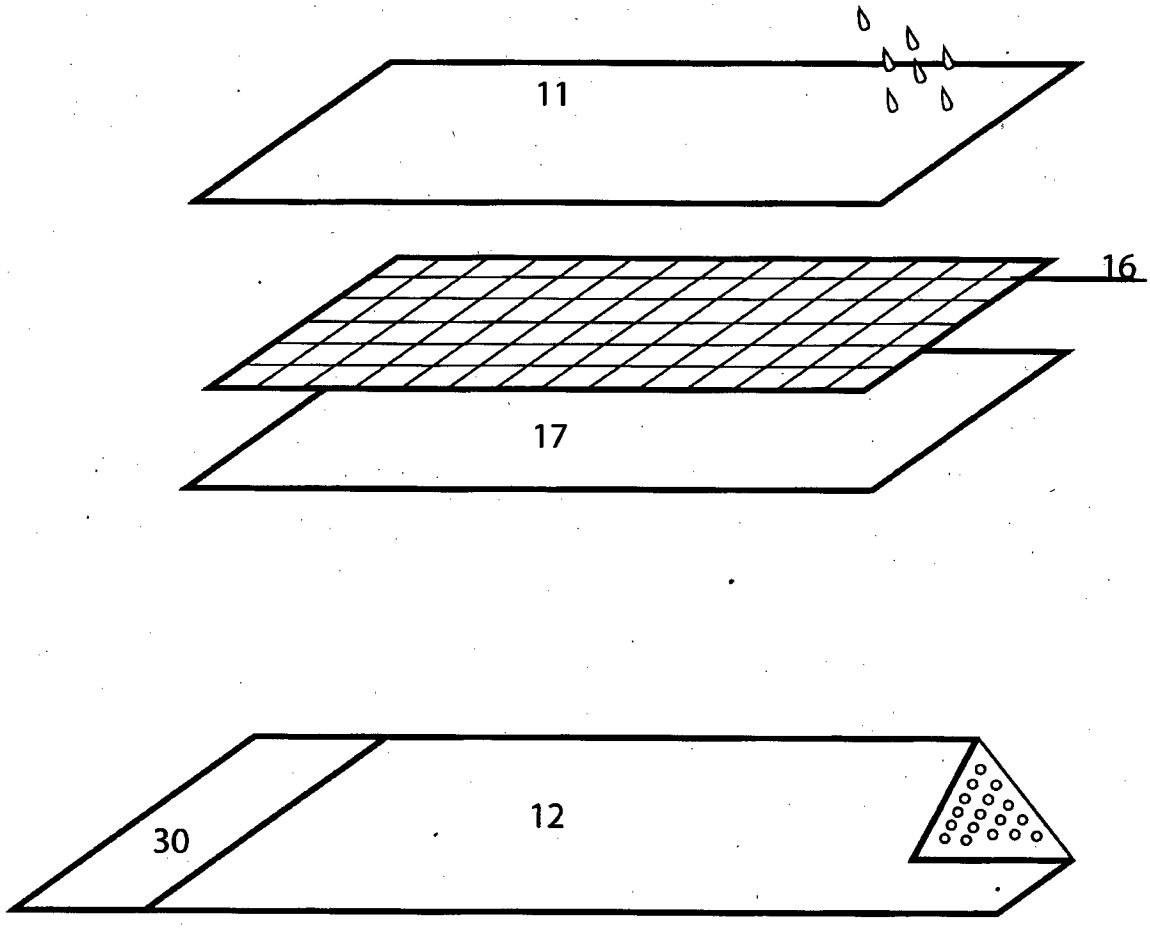

Figure 2

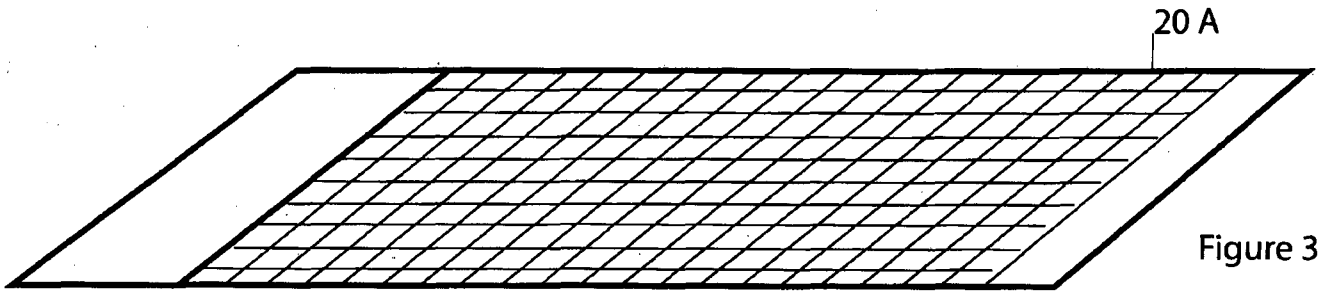

Figure 3

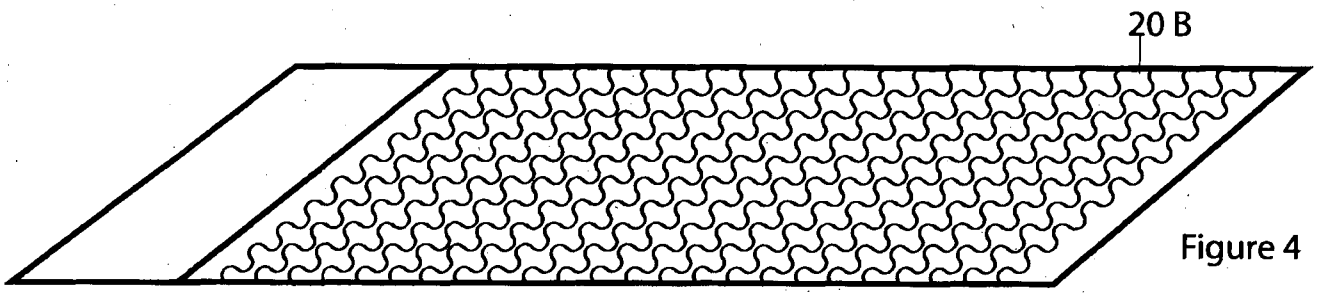

Figure 4

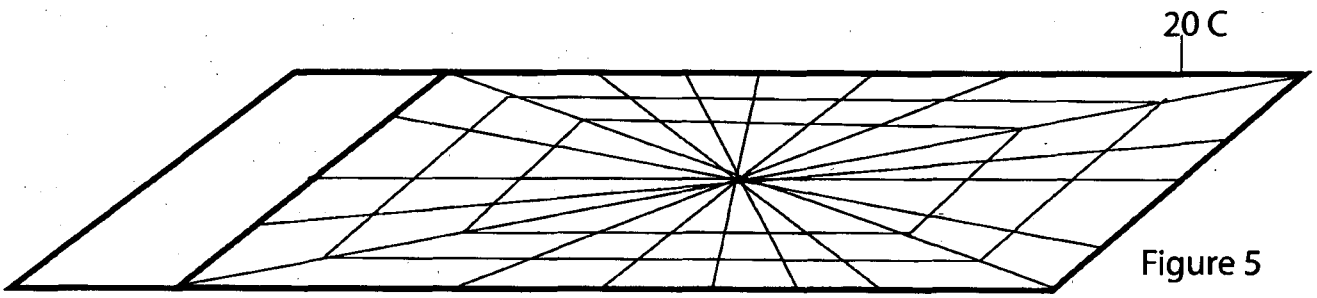

Figure 5

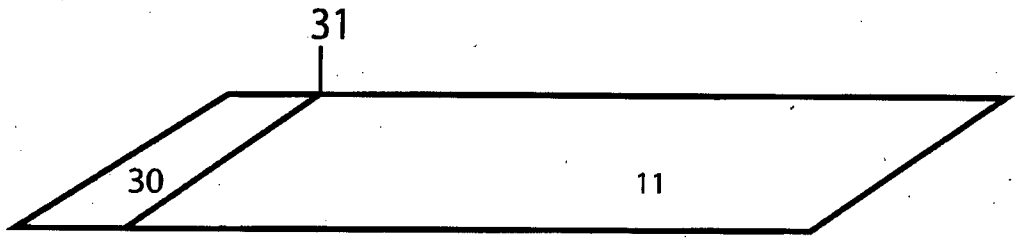

Figure 6

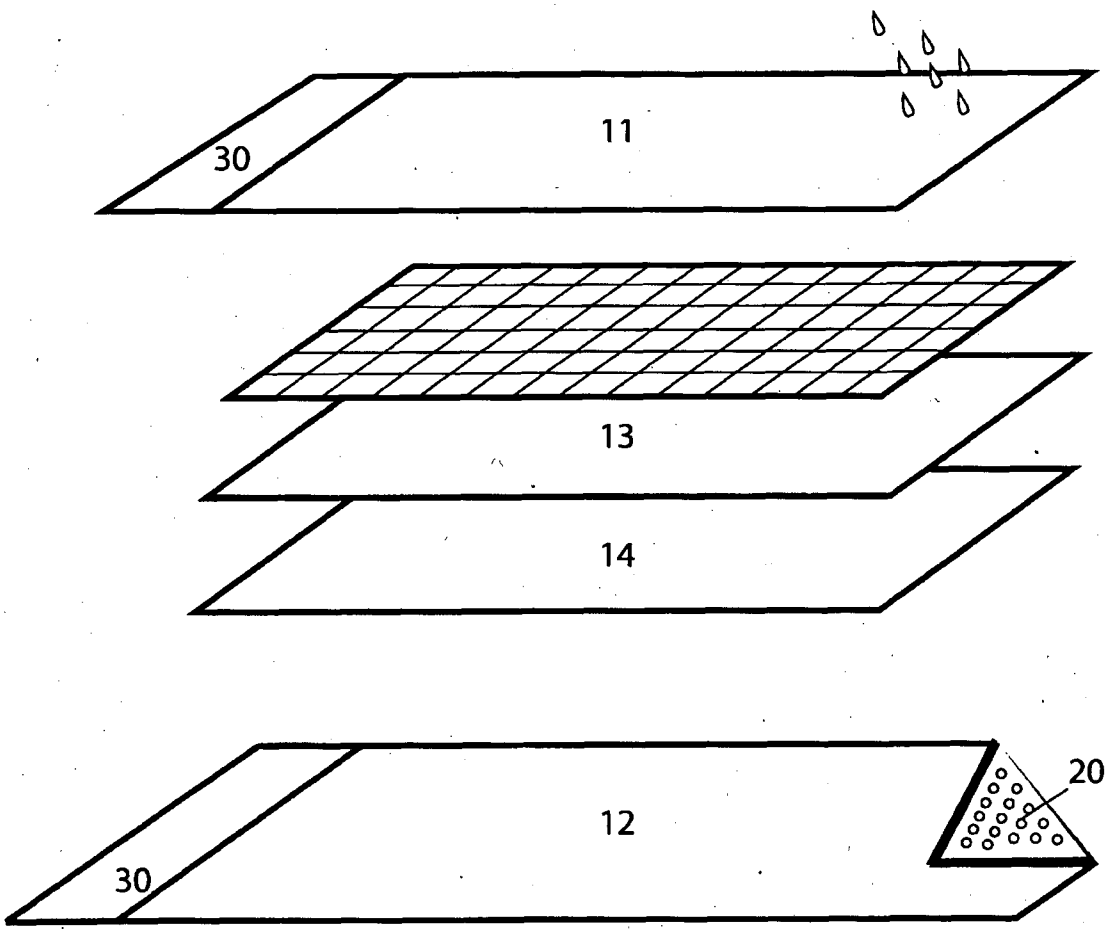

Figure 7

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2012/000463

A. CLASSIFICATION OF SUBJECT MATTER

A63B 6/00 (OCT 2005)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPODOC, WPAT, PATENTLENS (keywords: A63B 6/00; Microfib+ and similar words)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
02 July 2012	03 July 2012

Name and mailing address of the ISA/AU

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2012/000463

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☒ Claims Nos.: **11**
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
The claim 11 does not comply with Rule 6.2(a) because it relies on references to the description and/or drawings.

3. ☐ Claims Nos:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		International application No. **PCT/AU2012/000463**
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	AU 2011101252 B4 (MindsInSync, Inc.) 27 October 2011 see the abstract in context of the whole document	1-10
X	KR 100686627 B1 (ETWOUNGINC CO LTD) 16 February 2007 See the English language abstract from Espacenet in context of the whole document	1-10
X	US 2005/0192158 A1 (Edwards) 01 September 2005 See the abstract in context of the whole document	1-10
A	US 6295658 B1 (Jenkins) 02 October 2001 figure 3	
A	US 3578738 A (Hughes) 18 May 1971 figure 3	

INTERNATIONAL SEARCH REPORT Information on patent family members	International application No. **PCT/AU2012/000463**

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		**Patent Family Member/s**	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
AU 2011101252 B4	27 Oct 2011	None	
KR 100686627 B1	16 Feb 2007	KR 100686627 B1	16 Feb 2007
US 2005/0192158 A1	01 Sep 2005	US 2007066467 A1	22 Mar 2007
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		US 6295658 B1	02 Oct 2001
		WO 9927202 A1	03 Jun 1999
US 3578738 A	18 May 1971	US 3578738 A	18 May 1971

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.