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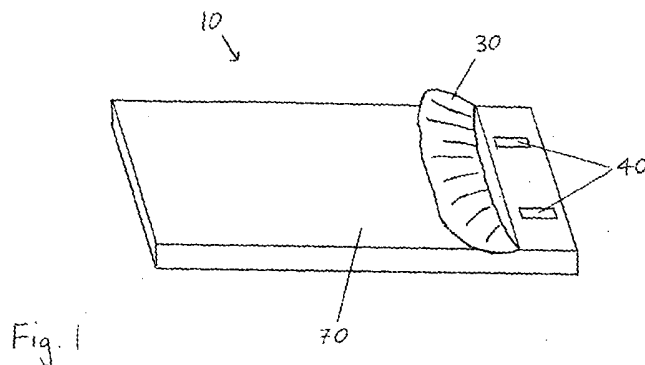
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US 6223367 B1 US 5291625 A
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(54) Title of the Invention: Roll-up cover
Abstract Title: Roll-up cover with memory foam mat

(57) A covering 10 is provided which comprises a flexible mat 70 of memory foam and an enclosure 30 attached to the covering, the enclosure being arranged to retain the mat when it is rolled up. The mat maybe enclosed within a case wherein the enclosure maybe attached to the case. The enclosure and case may be made of the same material. The enclosure may be in the form of a hood whereby the enclosure may be elasticated around its periphery. The covering may be provided with temporary fastenings on one face at one end. The covering may be a seat cover. The covering may be an exercise mat. The covering may be a camping mat.



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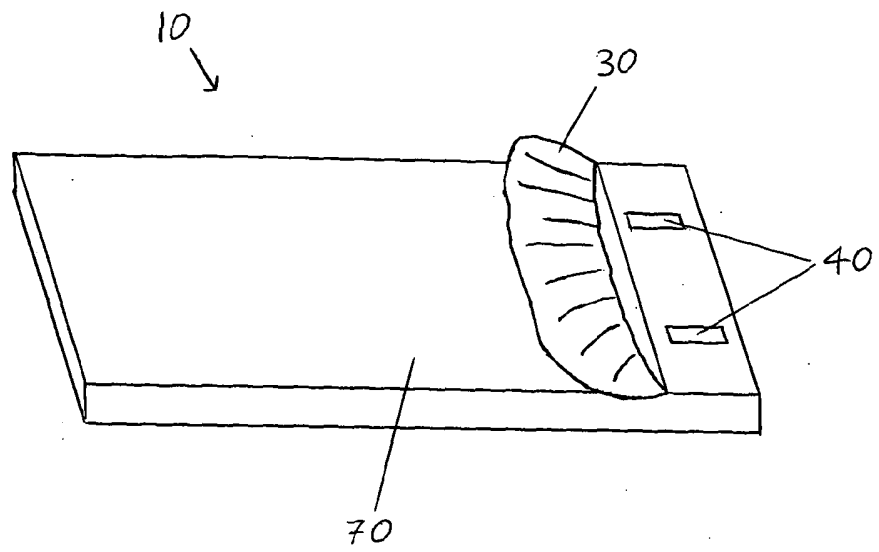


Fig. 1

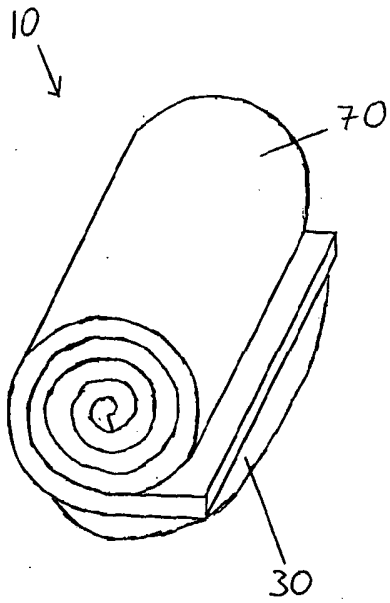


Fig. 2

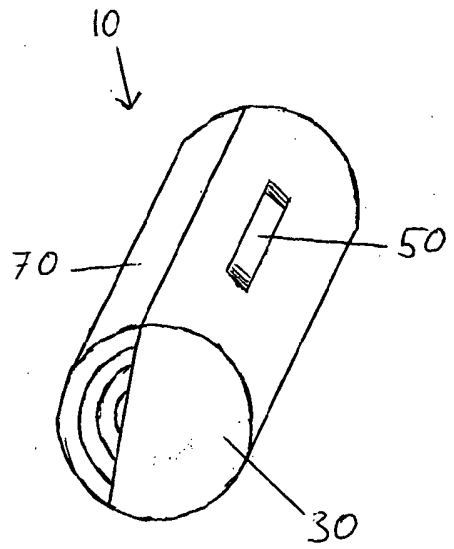


Fig. 3

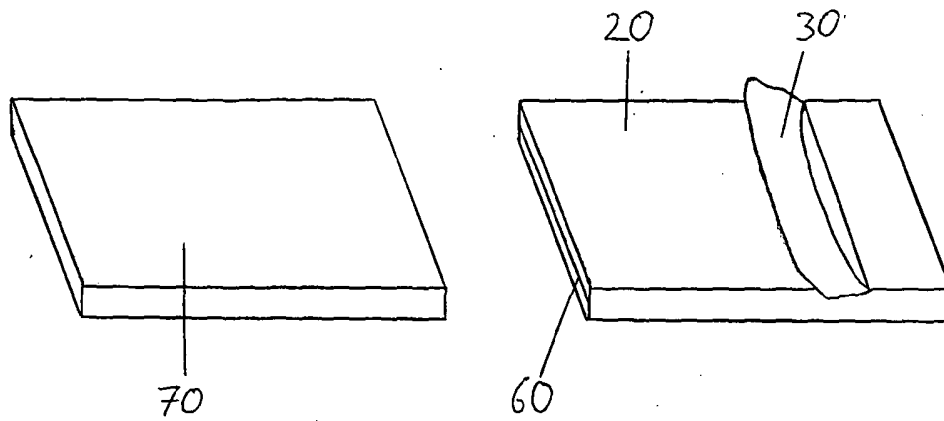


Fig. 4

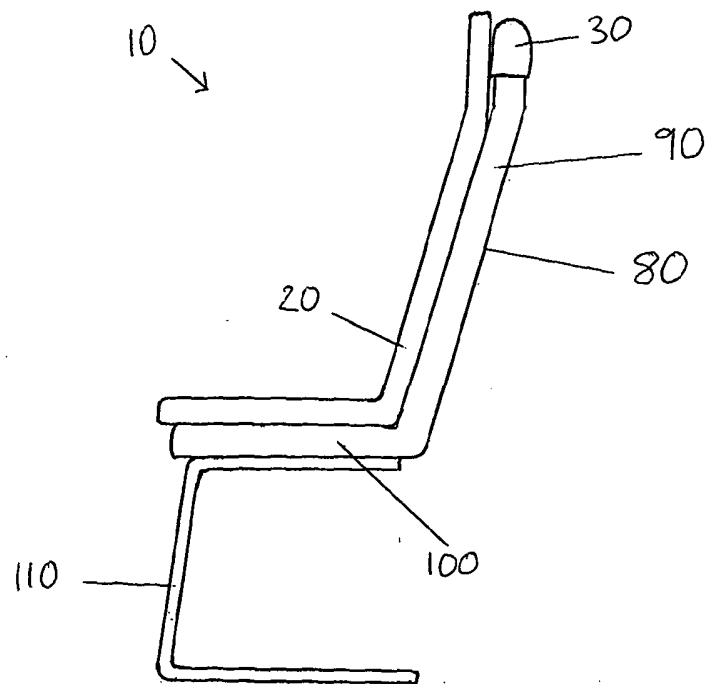


Fig. 5

Roll-up Cover

The invention relates to a portable cover, particularly for covering a seat. More specifically, the invention relates to a cover which can be rolled up and stored when
5 not in use.

Long distance travel frequently involves sitting in a seat for extended periods of time. For example, travel by car, coach, rail or aeroplane typically involves extended periods of time sat in a seat. This can be uncomfortable and can in some
10 cases bring on or exacerbate medical conditions. In addition, due to the discomfort, it can be difficult or impossible to rest properly on such journeys which leads to tiredness and further discomfort even after the seated travel is over.

Many attempts have been made to make seated travel more comfortable, including
15 various cushions and pillows. Many varieties of neck pillows have been tried. Many of these are inflatable, being inflated for use and deflated for packing. A typical neck pillow, when inflated, forms a horseshoe-shaped cushion which can be placed around the neck in order to provide support for the head and to keep the neck straight when sleeping in a sitting position. However, it is not just the head and neck
20 which can become uncomfortable during extended seated travel. Various ergonomic seat cushions and back supports have also been designed to minimise discomfort to other parts of the body, but these are typically bulky and awkward to transport.

According to the invention there is provided a covering comprising a flexible mat of
25 memory foam and an enclosure attached to the covering, the enclosure being arranged to retain the mat when it is rolled up.

Memory foam is a type of foam in which the firmness changes with temperature. When the foam is heated up (e.g. by body heat), it becomes softer, thus moulding
30 quickly to the shape of a warm object placed against it. As the memory foam moulds quickly in the presence of body heat, it quickly forms a comfortable and supporting structure around the body, distributing the body's weight more evenly

and thereby minimising pressure points. This can significantly increase the comfort of the seat for the person sitting in it. If the person adjusts their position in the seat, the memory foam can quickly remould to the new position and can continue to provide good support and comfort.

5

Memory foam (also known as visco-elastic foam) is typically made from a polyurethane foam with some additional chemicals added to increase the viscosity of the foam. However, it will be appreciated that the present invention is not limited to a particular composition. Memory foam comes in a variety of densities. Different densities can be selected according to the application and the comfort needs of the user. Different users may prefer different densities of foam.

10

As the enclosure is arranged (particularly sized and shaped) so as to accommodate the mat when it is rolled up, the mat can be easily transported. When not in use, the mat is simply rolled up and the roll is tucked into the enclosure which holds the roll in this configuration. When the mat is to be used, the enclosure is simply disengaged from the roll and the mat is allowed to unroll.

15

The enclosure may be directly attached to the foam mat, e.g. by gluing or sewing or by any other means. However, preferably the covering further comprises a case and the mat is enclosed within the case. More preferably, the mat is removably enclosed within the case. Providing a case around the mat provides a different surface feel to the mat which may be preferred by some users over the feel of the memory foam itself. Additionally, the foam cannot be readily washed, but by providing a removable case, the foam mat can be removed and the case can be washed separately. Depending on the material used for the case, the case may be machine washable. As non-limiting examples, the case may be made from cotton, nylon, polyester, polypropylene, silk, leather, PVC or combinations of these. Fabric may be knitted or woven in different ways for different textures. For example, the fabric may be a velour or a velvet. Alternatively the case may also be made from a memory foam fabric.

20

25

30

When a case is provided around the memory foam mat, the enclosure may be attached to the case (i.e. indirectly attached to the mat). The enclosure and the case may be made from different materials, but preferably they are made from the same material for simplicity of manufacture and in order to provide a consistent feel and appearance to the product.

The enclosure may be attached (directly or indirectly as described above) to the mat at any point along the length of the mat. For example, the enclosure may be provided at one of the ends of the mat. To store the mat, the mat is then rolled up from the opposite end and the whole roll is tucked inside the enclosure. However, preferably the enclosure is attached to the covering (to the mat or to the case) at a short distance from the end of the mat.

A particular advantage of the enclosure is that when the mat is used as a seat cover, the enclosure also serves as a retainer to retain the mat in position on the seat. In use, the enclosure can be hooked over the top of the seat, thereby holding the mat in position on the seat. The mat then extends down along the backrest and then forward along the seat thereby covering substantially the entire contact area of the seat. Although when a person is sat on the seat (and the mat), the person's weight serves to hold the mat sufficiently well in place, the enclosure serves to hold the mat securely in place even when a person is not sat on the seat.

If the enclosure is attached to the covering at the end of the mat, then when the enclosure is fitted over the top of a seat, the top of the mat naturally locates below the top of the seat. In this configuration the mat therefore may not extend up far enough to provide adequate support for the head of a person seated in the seat. However, when the enclosure is attached to the covering a short distance from the end of the mat as described above, then the mat extends up above the attachment point of the enclosure when in use and can extend up to or even slightly past the top of the seat, thereby providing good support to the head and neck of a person sat in the seat.

The distance from the end of the mat at which the enclosure is attached can vary. However, it is preferably not located at a distance further than the circumference of the rolled-up mat as the mat would then not completely roll up within the enclosure. Preferably the distance from the end of the mat to the attachment point of the enclosure is less than half the circumference of the mat when rolled up. More preferably the distance is approximately a third of the circumference of the mat when rolled up.

As described above, the enclosure is sized so as to retain the mat when it is rolled up. The size of the enclosure may vary while still meeting this requirement. In order to retain the mat, the length of the enclosure (i.e. the dimension in the direction of rolling of the mat) should be at least half the circumference of the rolled up mat. With this arrangement, the enclosure can hold the rolled up mat at two diametrically opposite points, thus retaining the mat and preventing it from springing out and unrolling. Preferably, the length of the enclosure is more than half the circumference of the rolled up mat so that it can wrap sufficiently far around the roll that the roll will not easily slip out and unroll.

In one preferred embodiment, when the roll is fitted within the enclosure, at least two thirds of the roll is enclosed within the enclosure.

Preferably the enclosure is slightly wider than the foam mat. This enables the enclosure to wrap around the sides of the mat when it is rolled up, thus retaining the mat in its rolled up shape. Alternatively, if the enclosure is made from an elastic material, it may be stretched so as to wrap round the sides of the roll.

Additionally, whether the enclosure is made from an elastic or inelastic material, the enclosure may be elasticated around its periphery. For example, the enclosure may be formed from a rectangle of material with an elastic band or strip fitted round the edges. The elastic material may be stitched to the fabric or may be provided in a tubular pocket formed by folding the fabric over and stitching it to itself. The elastic material is preferably of a length such that when stretched it matches the perimeter

of the enclosure, but when allowed to contract it draws in the perimeter of the enclosure. With this arrangement, when the mat is rolled up and fitted inside the enclosure, the perimeter of the enclosure draws in around the roll of mat, securing the roll within the enclosure.

5

As an alternative to elastic, a draw chord can be provided with a holding means such as a clamp or toggle for releasably holding the chord in a drawn-in position.

10 It will be appreciated that the enclosure can take different sizes depending upon the application (e.g. a seat cover) and the size of the mat. However, it has been recognised that the size of enclosure which fits most common aeroplane seats and car seats is a suitable size to comfortably enclose a mat whose length covers the seat cushion and the backrest of such seats and whose thickness provides adequate comfort and support as described above.

15

Preferably the enclosure is in the form of a hood.

20 The case is preferably sized so as to be a reasonably snug fit around the mat, so that the case takes on roughly the same shape as the mat without too much excess material which may give the product a baggy look. Preferably therefore the case is in the form of a bag, the interior of which is sized so as to accommodate the mat.

25 The case preferably has an opening through which the mat can be inserted or removed. As described above, this allows the case to be washed separately. The opening is preferably releasably closable, e.g. by means of a zip, poppers, ties, clips, hook and loop material or the like. The opening may be provided at any place in the cover. However, it is preferably located along one of the ends or sides so that it does not interrupt either of the main faces of the case, i.e. those faces which lie over the largest faces of the mat. As the purpose of the mat is for support and comfort, it is preferred to provide a smooth face for contact with the body and not to have any
30 seam interrupting that smoothness.

It should be noted that the mat may be arranged so that it is reversible. With this arrangement, the user can be in contact with either side of the mat and the mat can be rolled up either way.

5 In one preferred embodiment, a handle is provided on the covering for carrying the covering when it is in the rolled up configuration. The handle may be made from any material, but if a case is provided around the mat, then it is preferable to make the handle of the same material. The handle can be a simple strip of material with
10 portion large enough to fit a hand through. The handle provides a simple way to carry the mat when it is not in use. The handle is preferably attached to the enclosure.

In certain embodiments, the mat may be formed with extra foam supports in certain
15 locations. For example, extra support may be required around the hand and/or neck. If desired, extra foam may be provided in these regions or the foam mat be molded into a different shape.

In most instances however, the mat is a simple cuboid shape. The case may
20 therefore be a simple sack into which the mat can be inserted. In its simplest form, this can just be two sheets of material sewn together along three sides, leaving the fourth side open for insertion of the mat. In other embodiments, the mat may not be quite rectangular in shape, but may instead have one or both ends tapered or rounded. The case, if provided, should be similarly shaped.

25 The mat (or the case) may be provided with temporary fastenings on one face at one end. Airline seats are often provided with such fastening devices for easy removal or replacement of headrests or headrest covers. As one example, hook and loop type material such as Velcro (TM) may be used. For example, the seat may be provided
30 with the hooks of the hook and loop type material and the headrest cover may be provided with the loops of the hook and loop type material so that they can easily and securely be fixed together. The mat or the case of the present invention may

therefore be provided with a suitable fixing means for attaching to the fixing means of the seat. In the example above, the mat would be provided with the loops of the hook and loop type material so that it could be securely fastened to the seat in place of the headrest cover.

5

Although the mat is primarily intended as a cover for a seat, it may also be useful as a camping mat for sleeping on or as an exercise mat such as a yoga mat. The mat may be of different sizes and/or shapes according to its intended use.

10 When used as a seat cover, the foam mat is preferably between 35 and 50 cm wide. Most preferably, the mat is about 44 cm wide. This size of mat provides an adequate seating width for the user and will fit onto most aeroplane, car, coach and train seats. Preferably, the foam mat is between 130 and 160 cm in length. This provides a length which will cover the whole of the backrest and the whole of the
15 seat of most aeroplane, car, coach and train seats. The foam mat is preferably between 2 and 8 cm thick. If the memory foam is too thin, then the benefits of the foam will not be fully realised as the weight of the person sitting on the foam may squash the foam completely which will result in some reduction in support from the foam. If the foam is too thick, it may become too heavy to carry around easily and
20 the size of enclosure required to contain it may be too big to be of practical use as a retaining means on the seat.

When used as a camping mat or an exercise mat, the width of the foam mat may be greater than or equal to 50 cm and the length may be up to 200 cm. The thickness of
25 the foam will preferably be between 2 and 8 cm as with the seat cover.

Preferred embodiments of the invention will now be described, by way of example only, and with reference to the accompanying drawings in which:

30 Figure 1 shows an embodiment of the invention, in an extended configuration;
Figure 2 shows an embodiment of the invention, when in a rolled up, but not secured configuration;

Figure 3 shows an embodiment of the invention, in a rolled up and secured configuration;

Figure 4 shows an exploded view of an embodiment of the invention; and

Figure 5 shows a seat cover according to an embodiment of the invention deployed
5 on a seat.

An embodiment of the invention is shown in Figure 1. This embodiment is designed for use as a cover for an aeroplane, train, coach or car seat. However, as described above, it will be appreciated that the cover may be used instead as a sleeping mat or
10 as an exercise mat.

As shown in Figure 1, the cover 10 includes a memory foam mat 70. A hood 30 is attached to the mat 70 and is sized so as to contain the mat 70 when the mat 70 is rolled up. Figure 2 shows the mat 70 in a state in which it has been rolled up, but in
15 which the hood 30 has not been wrapped around the roll. Figure 3 shows the rolled up mat 70 with the hood 30 wrapped around the roll to hold it in the rolled up state.

As will be seen in Figure 3, the hood 30 forms an enclosure which wraps around the rolled up mat 70. The hood 30 wraps over half way round the rolled up mat so that
20 the elasticated opening of the hood 30 is smaller in circumference than the largest corresponding circumference of the rolled up mat 70, thereby preventing the mat 70 from escaping the hood 30 and unrolling without deforming the elastic to open the hood 30. This keeps the cover 10 rolled up neatly for storage.

Figure 3 also shows a handle 50 which is provided for easy carrying of the cover 10. The handle 50 is a simple length of material attached at each end to the outside of the hood 30.
25

Figure 1 also shows two strips 40 of Velcro (TM) material which enable the mat 70
30 to be releasably attached to the upper portion (e.g. the headrest) of a seat with a corresponding attachment point. For example, if the strips 40 are formed of Velcro

(TM) loop material, the attachment point on the seat should be Velcro (TM) hook material.

5 An exploded view of another embodiment is shown in Figure 4. Figure 4 shows a memory foam mat 70 which is removably inserted into an outer case 20. In some embodiments, the case is made from a modacrylic flame retardant material. In some
10 embodiments, the case is made from a 210 denier polyurethane coated oxford nylon. The case 20 has an opening at one end which is fitted with a zip 60 to make it openable and closable. The case is accessed by opening the zip 60. The mat 70 can then be inserted into the case 20 and the opening can be closed by closing the zip 60 to retain the mat 70 inside the case 20.

Figure 5 shows a side view of an airline seat 80 with a seat cover 10 attached to it. The seat cover 10 is laid over the seat cushion 100 of the seat 80 and against the
15 backrest 90 of the seat 80. The seat cover 10 is held in place by hooking the hood 30 over the top of the backrest 90 of the seat 80. This prevents the cover from falling forwards or slipping down the seat 80. The hood 30 is sized so that it encompasses the mat 70 when rolled up, but also so that it fits neatly over the top of the seat 80 without extending too far down the seat. This is important in places such
20 as aeroplanes or trains where it is important that the cover 10 does not obscure or interfere with fold-down tray tables or television screens which may be positioned on the back of the seat for the person seated behind.

When the cover 10 is fitted to the seat 80 as shown in Figure 5, the cover provides a
25 good and comfortable support for a person sitting in the seat as the memory foam mat will deform due to the person's body heat and will mold to the shape of their body. This distributes the person's weight more evenly on the seat and reduces the resulting pressure on the body. The cover 10 therefore makes the seat more comfortable for the user, which is particularly beneficial over longer journey times.

30 Additionally, the cover 10 provides a clean surface on which to sit. Seats on public transport vehicles such as aeroplanes, trains and coaches can get filthy due to

normal use (and often abuse) by large numbers of people. Such seats are often not cleaned frequently as cleaning is time consuming and expensive. The cover 10 can therefore be used as a secondary surface to cover the unclean surface of the seat and provide a clean surface for the user to sit on. As the cover 10 can be removed easily,
5 it can be washed easily. For example, if a person has their own seat cover 10, they can apply the seat cover when they arrive at a seat and remove it when they leave. The cover 10 can be cleaned as often as required. Alternatively, covers 10 could be loaned out, e.g. on airlines to passengers who require them. As the covers are easily removed after the journey, they can be easily washed before the next use. The cover
10 10 therefore provides a more hygienic seating environment.

It will be appreciated that the features described above in relation to one embodiment may be applied equally well to other embodiments. The features of the various embodiments may be readily combined together if desired.

Claims:

1. A covering comprising a flexible mat of memory foam and an enclosure
5 attached to the covering, the enclosure being arranged to retain the mat when it is rolled up.
2. A covering as claimed in claim 1, wherein the mat is enclosed within a case.
- 10 3. A covering as claimed in claim 2, wherein the mat is removably enclosed within the case.
4. A covering as claimed in claim 2 or 3, wherein the enclosure is attached to the case.
- 15 5. A covering as claimed in claim 2, 3 or 4, wherein the enclosure and the case are made from the same material.
6. A covering as claimed in any preceding claim, wherein the enclosure is
20 attached to the covering at a short distance from the end of the mat.
7. A covering as claimed in claim 6, wherein the distance from the end of the mat is less than the circumference of the mat when rolled up.
- 25 8. A covering as claimed in claim 7, wherein the distance from the end of the mat is less than half the circumference of the mat when rolled up.
9. A covering as claimed in claim 8, wherein the distance from the end of the mat is approximately a third of the circumference of the mat when rolled up.
- 30 10. A covering as claimed in any preceding claim, wherein the length of the enclosure is at least half the circumference of the mat when rolled up.

11. A covering as claimed in claim 10, wherein the enclosure is arranged such that when the roll is fitted within the enclosure, at least two thirds of the roll is enclosed within the enclosure.
- 5 12. A covering as claimed in any preceding claim, wherein the enclosure is wider than the mat.
13. A covering as claimed in any preceding claim, wherein the enclosure is elasticated around its periphery.
- 10 14. A covering as claimed in any preceding claim, wherein the enclosure is in the form of a hood.
- 15 15. A covering as claimed in any of claims 2 to 14, wherein the case is in the form of a bag, the interior of which is sized so as to accommodate the mat.
16. A covering as claimed in claim 15, wherein the case has an opening through which the mat can be inserted and removed.
- 20 17. A covering as claimed in claim 16, wherein the opening is releasably closable.
18. A covering as claimed in any preceding claim, wherein a handle is provided on the covering.
- 25 19. A covering as claimed in claim 18, wherein the handle is attached to the enclosure.
20. A covering as claimed in any preceding claim, wherein the mat is formed with additional memory foam supports in certain locations.
- 30

21. A covering as claimed in any preceding claim, wherein the covering is provided with temporary fastenings on one face at one end.
22. A covering as claimed in any preceding claim, wherein the mat is between
5 35 and 50 cm wide.
23. A covering as claimed in any preceding claim, wherein the mat is about 44 cm wide.
- 10 24. A covering as claimed in any preceding claim, wherein the mat is between 130 and 160 cm in length.
25. A covering as claimed in claim 22, 23 or 24, wherein the covering is a seat cover.
15
26. A covering as claimed in any of claims 1 to 21, wherein the width of the mat is greater than or equal to 50 cm.
27. A covering as claimed in any of claims 1 to 21 or 26, wherein the length of
20 the mat is up to 200 cm.
28. A covering as claimed in claim 26 or 27, wherein the covering is an exercise mat.
- 25 29. A covering as claimed in claim 26 or 27, wherein the covering is a camping mat.
30. A covering as claimed in any preceding claim, wherein the thickness of the mat is between 2 and 8 cm.
30
31. A covering substantially as hereinbefore described with reference to the accompanying drawings.



Application No: GB0914715.8

Examiner: Mr Sean O'Connor

Claims searched: 1-31

Date of search: 24 September 2009

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
Y	1-12, 14-30	US5291625 A (LESLIE) See whole document.
Y	1-12, 14-30	US6223367 B1 (FRENCH) See abstract and figures.
Y	1-30	US4634618 A (GREER) See abstract and figures.
Y	1-30	US2007/120409 A1 (LEEDS) See abstract and figures.
Y	1-30	US5203041 A (ALONZO) See abstract and figures.
Y	1-30	US2006/200910 A1 (TAYLOR) See abstract and figures.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
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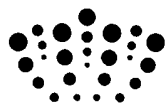
Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^X :

Worldwide search of patent documents classified in the following areas of the IPC
A45F; A47G; B60N; B64D
The following online and other databases have been used in the preparation of this search report
WPI, EPODOC, TXTE

International Classification:

Subclass	Subgroup	Valid From
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Subclass	Subgroup	Valid From
B60N	0002/60	01/01/2006
A45F	0004/06	01/01/2006
A45F	0004/08	01/01/2006