

(21) Application No: 1318310.8

(22) Date of Filing: 16.10.2013

(71) Applicant(s):
University of Cape Town
(Incorporated in South Africa)
Lovers Walk, Rondebosch 7701, Cape Town,
South Africa

(72) Inventor(s):
Fleur Margaret Howells

(74) Agent and/or Address for Service:
Kilburn & Strode LLP
20 Red Lion Street, LONDON, WC1R 4PJ,
United Kingdom

(51) INT CL:
A61G 13/12 (2006.01) **A61B 5/055** (2006.01)

(56) Documents Cited:
WO 2013/010273 A1 **CN 202636968 U**
CN 201743695 U **JP 2001095772 A**
US 4400820 A **US 20070270683 A1**

(58) Field of Search:
INT CL **A47G, A61B, A61G**
Other: **EPODOC, WPI**

(54) Title of the Invention: **Stabilising kit**
Abstract Title: **Head stabilising kit for MRI/CT scanner**

(57) A head stabilising kit 28 is provided for supporting and reducing head movement of a person during medical imaging procedures. The kit comprises a supporting cushion 10 having a generally rectangular shape, a length of between about 45-53cm and a width of between 30-40cm, such that it can be folded to mediolaterally cover the head of a person. The cushion comprises upper and lower layers, the upper layer 12 being formed from a viscoelastic material, such as memory foam, and the lower layer 14 being provided by a material, preferably non-viscoelastic, having a higher resistance to deformation and a lower viscosity than the upper layer. The kit also includes two elongate wedge-shaped supporting elements 30 that are insertable between the stabilising cushion and an inner surface 24 of the head coil 26. The cushion may be provided with one or more recesses 46 to receive a medical imaging compatible headset.

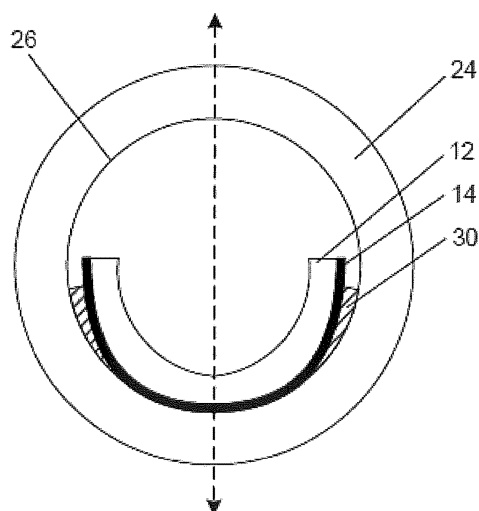


Figure 4

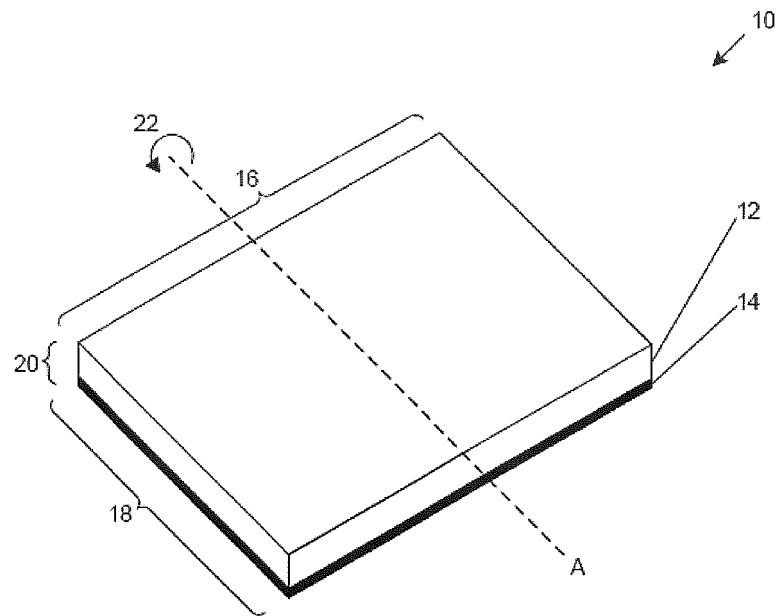


Figure 1

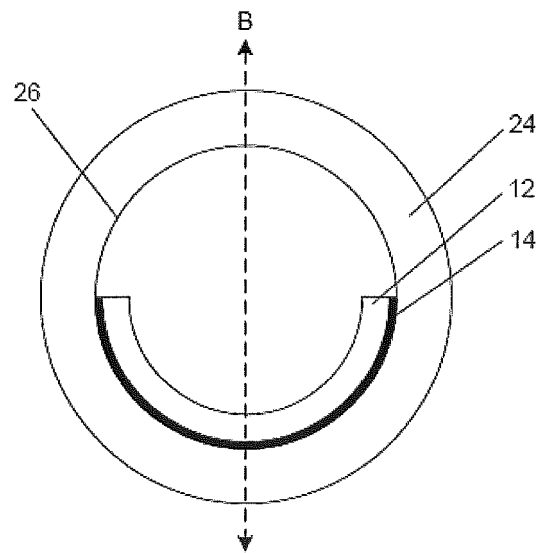


Figure 2

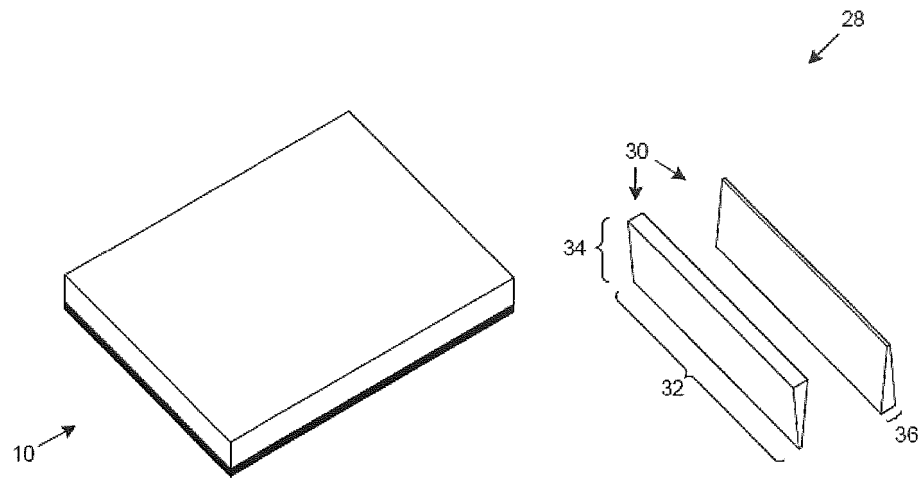


Figure 3

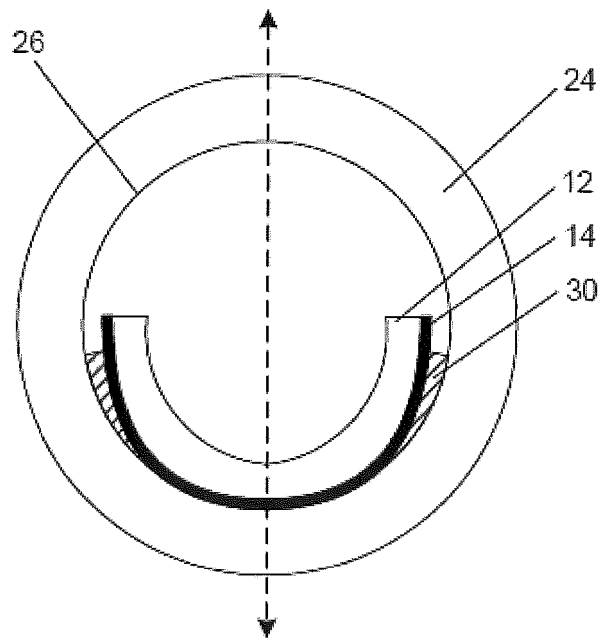


Figure 4

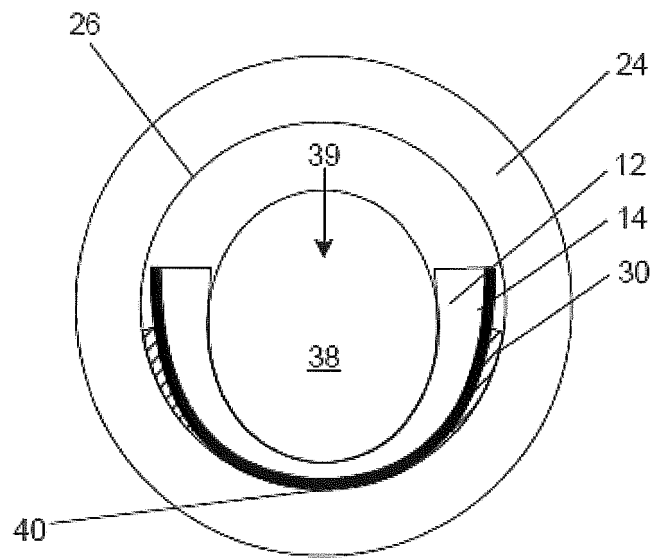


Figure 5

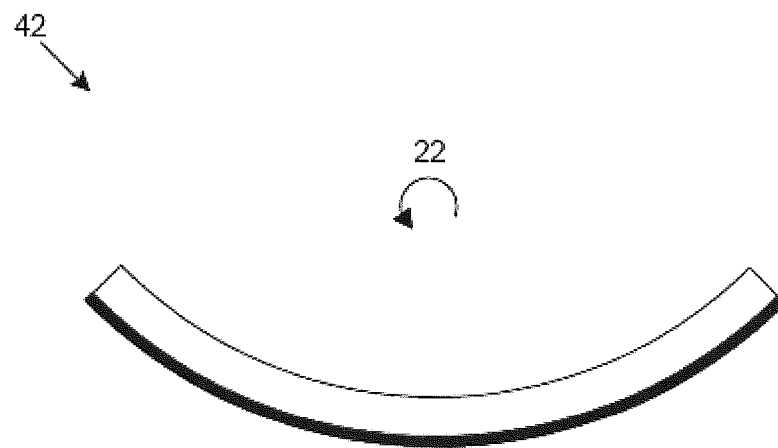


Figure 6

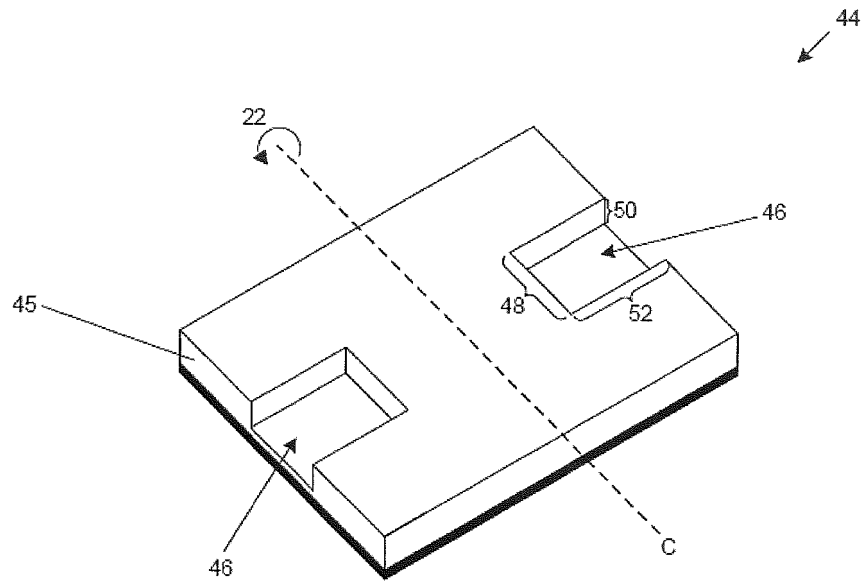


Figure 7

STABILISING KIT

FIELD OF THE INVENTION

- 5 This invention relates to stabilising cushions, and, more particularly, to a head stabilising kit for supporting and reducing head movement of a person during medical imaging procedures.

BACKGROUND TO THE INVENTION

10

Various medical imaging techniques exist for generating detailed visualisations of internal structures of the body. Magnetic resonance imaging (MRI) is a medical imaging technique which makes use of the property of nuclear magnetic resonance to image nuclei of atoms inside the body in order to create detailed images of internal bodily structures as well as metabolic profiles, using magnetic resonance spectroscopy

Several types of MRI techniques, notably magnetic resonance spectroscopy, are highly sensitive to movement. Movement artefact in MRI head scanning includes involuntary and voluntary movement of the head, which adversely impact MRI scans and lead to poor imaging results.

In some cases, the head of a person may not be adequately supported and stabilised, resulting in unwanted head and neck movement during a MRI procedure such as a brain scan. If excessive movement persists, the scan may be abandoned and subsequently restarted. This leads to wasted time and inefficient scanning resource usage.

During a brain scanning procedure, a person is required to lie down and place his or her head in an MRI head coil. A problem encountered during MRI brain scans is that, due to the inherent variability in the shape and size

of a head, the brain or particular area of the brain to be analysed is not always in a desirable position within the MRI head coil, leading to suboptimal results.

- 5 Embodiments of the present invention address these and other problems, at least to some extent.

SUMMARY OF THE INVENTION

- 10 In accordance with the invention there is provided a head stabilising kit comprising a supporting cushion having a generally rectangular shape, characterised in that it has a length of between about 45cm and about 53cm and a width of between about 30cm and about 40cm such that it can be folded to mediolaterally cover the head of a person, and is formed by an
15 inner layer of resiliently compressible material having a thickness of between about 3cm and about 6cm and a backing layer of resiliently compressible material having a thickness of between about 0.5cm and about 3cm, the inner layer provided by a viscoelastic material capable of closely conforming to the contours of the head, and the backing layer provided by a material
20 having a higher resilience to deformation and a lower viscosity than the inner layer, and two elongate, wedge-shaped supporting elements shaped to be insertable, in use, between the stabilising cushion and a surface of a magnetic resonance imaging (MRI) scanner on either side of the stabilising cushion.

25

- Further features of the invention provide for the viscoelastic material to be a viscoelastic polyurethane foam with a density of between about 36kg/m³ and about 40kg/m³; and for the backing layer material to be a non-viscoelastic plastics material, preferably a polyurethane, more preferably a flexible
30 polyether foam with a density of between about 35kg/m³ and about 45kg/m³ and a compression hardness of between about 4kPa and about 5kPa.

According to a first embodiment of the invention, the cushion is configured for use by an adult and has a backing layer thickness of between about 0.5cm and about 2cm, preferably about 1cm, an inner layer thickness of between about 3cm and about 5cm, preferably about 4cm, a width of about 35cm and
5 a length of about 49cm.

According to a second embodiment of the invention, the cushion is configured for use by a child and has a backing layer thickness of between about 1.5cm and about 3cm, preferably about 2cm, an inner layer thickness
10 of between about 4cm and about 6cm, preferably about 5cm, a width of about 35cm and a length of about 49cm.

Further features of the invention provide for the cushion to be provided with at least one recess shaped to permit a medical imaging compatible headset
15 to be received therein, in use; and for the recess to be provided by a slot in a surface of the inner layer of the cushion.

Yet further features of the invention provide for the cushion to be provided with two substantially identical recesses located generally symmetrically
20 about the widthways axis of the cushion; and for the recess to have a depth of approximately 4cm, a width of approximately 10cm and a length of approximately 15cm.

Still further features of the invention provide for the cushion to be provided
25 with a protective cover extending over and containing both the inner layer and the backing layer therein; alternatively, for the protective cover to extend only over the inner layer; and for the protective cover to be removable and optionally disposable.

30 A further feature of the invention provides for the stabilising cushion, in use, to be generally curved in lengthways cross-section such that the inner layer provides a concave surface and the backing layer provides a convex surface.

The invention extends to a stabilising cushion having a generally rectangular shape, characterised in that it has a length of between about 45cm and about 53cm and a width of between about 30cm and about 40cm such that it can
5 be folded to mediolaterally cover the head of a person, and is formed by an inner layer of resiliently compressible material having a thickness of between about 3cm and about 6cm and a backing layer of resiliently compressible material having a thickness of between about 0.5cm and about 3cm, the
10 inner layer provided by a viscoelastic material capable of closely conforming to the contours of the head, and the backing layer provided by a material having a higher resilience to deformation and a lower viscosity than the inner layer.

In order for the invention to be more fully understood, implementations
15 thereof will now be described with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

20 In the drawings:-

Figure 1 is a three-dimensional view of an embodiment of a stabilising cushion according to the invention;

25 Figure 2 is a side view of the stabilising cushion of Figure 1, wherein the cushion is positioned in a magnetic resonance imaging (MRI) scanner head coil;

30 Figure 3 is a three-dimensional view of an embodiment of a head stabilising kit according to the invention;

Figure 4 is a side view of the head stabilising kit of Figure 3, wherein

the head stabilising kit is positioned in a MRI scanner head coil;

Figure 5 is a side view of the head stabilising kit of Figure 3, in use;

Figure 6 is a side view of a further embodiment of a stabilising cushion according to the invention; and

Figure 7 is a three-dimensional view of a further embodiment of a stabilising cushion according to the invention, wherein the cushion is provided with recesses permitting a medical imaging compatible headset to be received therein.

DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS

Embodiments of a stabilising cushion according to the invention are shown in Figures 1, 2, 6 and 7.

In a first embodiment which is shown in Figures 1 and 2, the stabilising cushion (10) has a generally rectangular shape and is formed by an inner layer (12) and a backing layer (14), both layers provided by a resiliently compressible material.

The inner layer (12) is provided by a viscoelastic material capable of closely conforming to the contours of the head of a person, while the backing layer (14) is provided by a material having a higher resilience to deformation and a lower viscosity than the inner layer (12), preferably a non-viscous material.

In this embodiment, the stabilising cushion (10) is configured for use by an adult and has a length (16) of 49cm, a width (18) of 35cm, and a thickness (20) of 5cm. The backing layer (14) has a thickness of 1cm and the inner layer (12) has a thickness of 4cm.

The viscoelastic material constituting the inner layer (12) comprises a viscoelastic polyurethane foam, commonly known as “memory foam”, with a density of 38.5kg/m³. In this embodiment, the viscoelastic polyurethane foam is a Density Class 40 foam. The density of the inner layer (12) may of course vary, particularly within the range of about 36kg/m³ to about 40kg/m³.

The backing layer (14) is provided by a harder, more resilient material which has little or preferably no viscoelastic properties, preferably a plastics material. In this embodiment, the material is a polyurethane in the form of a Density Class 40 flexible polyether foam having a density ranging from about 35kg/m³ to about 45kg/m³, a compression hardness of between about 4kPa and about 5kPa, and preferably has a minimum tensile strength in the region of 90kPa.

It should be appreciated that the material type and exact specifications of the backing layer (14) may vary, provided that the backing layer (14) provides greater resilience to deformation and a lower viscosity than the inner layer.

During manufacturing, the inner layer (12) and the backing layer (14) are typically cut to desired dimensions from larger foam sheets before being bonded together. The layers (12, 14) are typically bonded together using an adhesive, preferably conventional foam adhesive.

The supporting cushion (10) is operable to be folded lengthways such that it mediolaterally covers the head of a person to provide stability and support during a movement-sensitive medical imaging procedure. The mediolateral axis of rotation (“A”) is indicated by the rotational arrow (22) in Figure 1.

In an operative position, the backing layer (14) is supported on a surface of a medical imaging device, typically a head coil of a magnetic resonance imaging (MRI) scanner.

Figure 2 illustrates the manner in which the stabilising cushion (10) is received within a MRI scanner head coil (24). In the operative position, the supporting cushion (10) covers approximately 180 degrees of an inner surface (26) of the scanner head coil. The broken line in Figure 2 illustrates the vertical axis (B) of the MRI scanner.

The supporting cushion (10) may form part of a head stabilising kit (28). The stabilising kit (28), one embodiment of which is illustrated in Figures 3 to 5, includes the supporting cushion (10) as described above and two elongate, wedge-shaped supporting elements (30), best shown in Figure 3.

In the embodiment of Figure 3, the supporting elements (30) have a length (32) of 35cm, a height (34) of 9.5cm, and a thickness (36) tapering vertically downward from a top thickness of 2.5cm to a bottom thickness of 0.5cm. The supporting elements (30) are provided by a hard, resilient material having similar material properties to the material properties of the backing layer (14), as described above.

In an operative position, the supporting elements (30) are employed in combination with the supporting cushion (10) to enhance the support and stability provided thereby and to address curvature of the head. The supporting elements (30) are inserted on either side of the stabilising cushion (10) between the stabilising cushion (10) and the inner surface (26) of the scanner head coil (24), as shown in Figures 4 and 5.

In use, the head (38) and optionally the neck of a person is positioned on top of the inner layer (12) and compresses the viscoelastic material, as indicated by the directional arrow (39) in Figure 5. The viscoelastic material of the inner layer (12) conforms closely to the contours of the back of the head, face, and neck of the person and thus provides contact over a large surface area. This provides support against movement, in particular lateral or mediolateral movement of the head and neck during a scanning procedure.

Support is further provided against lifting movements which may be caused by involuntary bodily movements such as swallowing. Also, the large area of contact enhances patient comfort as it provides a good fit about the head and also avoids pressure points developing. This in turn reduces head movement as, typically, when patients are comfortable they are less likely to move to alleviate discomfort associated with pressure in a certain area as occurs from pressure points. Additionally, the viscoelastic material permits the head to be firmly held without causing discomfort to the patient. The viscosity of the material of the inner layer (12), while yielding to sustained pressure providing an intimate fit about a head, resists sudden movements and in this way also stabilises the head against involuntary movement.

The degree of compression in the inner layer (12) is proportional to the weight of the head. Therefore, larger heads will generally induce a larger degree of compression in the inner layer (12), while smaller heads will generally induce a smaller degree of compression therein. The backing layer (14) does not undergo substantial compressive deformation in comparison with the inner layer (12). This enables different heads, irrespective of their size or weight, to be centred within the head coil (14) at approximately the same height from a bottom-most surface (40) of the inner surface (26) of the head coil (24).

The dimensions of the cushion (10) are selected such that support is provided to both the head and neck of the person. The viscoelastic material of the inner layer (12) is able to conform to the profile of the head and neck and provide continuous support along the entire length of this area. This cannot be easily achieved with conventional supporting apparatuses and results in unwanted effects of both voluntary and involuntary bodily movements with conventional cushions. The cushion (10) of the invention obviates the need to voluntarily hold the head in a specific position and thus reduces the effects of voluntary and involuntary bodily movements on scan results.

The cushion is preferably provided with a disposable protective cover (not shown) to enhance patient hygiene. In order to prevent the face of a patient from coming into direct contact with the cushion, the cover may extend over
5 and contain both the inner layer and the backing layer therein. Alternatively it may extend only over the inner layer. The protective cover need not be disposable but could be of a washable material. However, in whichever form it is provided, the material of the cover is selected to permit the material of the inner layer to intimately conform to the head of the patient.

10

The supporting cushion and head supporting kit of the present invention have been found to eliminate involuntary head movement. This has drastically improved both imaging quality and efficiency of MRI scanners by eliminating the need for repeated scans. Also, the cushion can be used with any
15 commercially available MRI scanner and its use is not limited to a single type of machine as with prior art devices. The supporting elements are particularly useful in achieving optimal support with different medical imaging machines. Of course, the cushion could be tailored to provide an optimal fit for a specific machine if desired.

20

The above description is by way of example only and it should be appreciated that numerous changes and modifications may be made to the embodiments described without departing from the scope of the invention. For example, the supporting cushion and supporting elements may be
25 shaped to meet specifications of various scanner head coils in order to ensure, for example, that the cushion covers approximately 180 degrees or more of the inside of a particular head coil when received therein.

It should further be appreciated that the dimensions of the stabilising cushion may of course vary according to patient requirements. Particularly, the length
30 of the cushion may be between about 45cm and about 53cm, the width may be between about 30cm and about 40cm, the inner layer may have a

thickness of between about 3cm and about 6cm, and the backing layer may have a thickness of between about 0.5cm and about 3cm.

5 It is specifically foreseen that the dimensions of the cushion, and optionally the supporting elements, may be adapted such that the stabilising cushion is configured for use by a child. In one such embodiment, the cushion and has a length of 49cm, a width 35cm, a backing layer thickness of 2cm, and an inner layer thickness of 5cm.

10 As is evident from the above description, both the backing layer and the inner layer are typically provided with a greater thickness in cases where the supporting cushion is intended for use by children when compared to their thickness in cases where the cushion is intended for use by adults, adults generally having heavier heads than children causing a greater degree of
15 compression in the viscoelastic inner layer. This further facilitates positioning of the head of a person at an optimal or near-optimal point within the scanner for both adults and children.

The supporting cushion may, in an alternative embodiment, be generally
20 curved in lengthways cross-section such that the inner layer provides a concave surface and the backing layer provides a convex surface. This configuration facilitates both insertion into a MRI scanner head coil and lengthways folding thereof. An embodiment of a supporting cushion (42) having a curved natural disposition is shown in Figure 6.

25 In a further embodiment, and as shown in Figure 7, the supporting cushion (44) is structurally adapted to allow a patient to use a medical imaging compatible headset (not shown), such as noise-reducing MRI headphones, in conjunction with the cushion (44).

30 In this embodiment, the inner layer (45) of the supporting cushion (44) is provided with two identical recesses (46) therein located symmetrically about

- the widthways axis of the cushion, the widthways axis represented by the symbol "C" in Figure 7. The recesses (46) each have a width (48) of 10cm, a depth (50) of 4cm and a length (52) of 15cm, the inner layer (45) having a thickness of 5cm. This allows earpieces or headphones of the headset to be positioned in each recess (46) and against the ears of a patient while the supporting cushion covers the head during a medical imaging procedure, typically employing the supporting elements (30) as described with reference to Figure 5.
- 10 This configuration permits a patient to use noise-reducing headphones during a medical imaging procedure without significantly reducing the effectiveness of the cushion in conforming to the contours of the head, neck and face to provide stability and support.
- 15 It should be noted that the cushion can in other cases be provided with a single recess, or more than two recesses shaped to permit a headset to be received between the head of a patient and the inner layer of the supporting cushion, in use. A region of the surface of the inner layer of the cushion may be provided with a tapering slot to form a complementary recess wherein the headset is snugly received. The recess may extend only through the inner layer, as described with reference to Figure 7, or through both the inner layer and regions of the backing layer.
- 20
- It should be appreciated that any suitable recess or receiving formation permitting the use of a headset or other noise-reducing apparatus during a medical imaging procedure may be incorporated into the supporting cushion of the present invention. The dimensions of such recesses or receiving formations may vary. For example, different recess widths, lengths, depths or general shapes can be used for patients of different ages or having different head sizes and shapes. Also, the dimensions of such recesses or receiving formations may be varied in accordance with the type of headset, scanner or head coil used.
- 25
- 30

When provided with one or more recesses which permit a headset to be received between the head of a patient and the inner layer of the supporting cushion, the supporting cushion is typically implemented in conjunction with
5 the supporting elements as described to act as a head stabilising kit, or, alternatively, can be implemented without separate supporting elements.

It should be appreciated that any suitable manufacturing process may be employed to form and/or bond the inner layer and the backing layer. For
10 example, one or both of the layers may be formed in their final dimensions using a moulding process. Furthermore, the layers may be bonded using a stitching process instead of or in addition to using an adhesive.

Finally, any suitable materials can be used for the inner layer and the backing
15 layer. Specifically, any suitable viscoelastic material may be used for the inner layer and any suitable resiliently compressible material having a higher resilience to deformation and a lower viscosity than the inner layer material may be used for the backing layer.

20

CLAIMS

1. A head stabilising kit comprising:
a stabilising cushion having a generally rectangular shape,
5 characterised in that it has a length of between about 45cm and about 53cm
and a width of between about 30cm and about 40cm, such that it can be
folded to mediolaterally cover the head of a person, and is formed by an
inner layer of resiliently compressible material having a thickness of between
about 3cm and about 6cm and a backing layer of resiliently compressible
10 material having a thickness of between about 0.5cm and about 3cm, the
inner layer provided by a viscoelastic material capable of closely conforming
to the contours of the head, and the backing layer provided by a material
having a higher resilience to deformation and a lower viscosity than the inner
layer; and
15 two elongate, wedge-shaped supporting elements shaped to be
insertable, in use, between the stabilising cushion and a surface of a
magnetic resonance imaging (MRI) scanner on either side of the stabilising
cushion.
- 20 2. A head stabilising kit as claimed in claim 1 in which the
viscoelastic material is viscoelastic polyurethane foam having a density of
between about 36kg/m³ and about 40kg/m³.
3. A head stabilising kit as claimed in claim 1 or claim 2 in which
25 the backing layer material is a non-viscoelastic plastics material.
4. A head stabilising kit as claimed in claim 3 in which the plastics
material is flexible polyether foam having a density of between about 35kg/m³
and about 45kg/m³ and a compression hardness of between about 4kPa and
30 about 5kPa.
5. A head stabilising kit as claimed in any one of the preceding

claims in which the cushion is configured for use by an adult and having a backing layer thickness of between about 0.5cm and about 2cm, an inner layer thickness of between about 3cm and about 5cm, a width of about 35cm and a length of about 49cm.

5

6. A head stabilising kit as claimed in claim 5 in which the cushion has a backing layer thickness of about 1cm.

7. A head stabilising kit as claimed in claim 5 or claim 6 in which
10 the cushion has an inner layer thickness of about 4cm.

8. A head stabilising kit as claimed in any one of claims 1 to 4 in which the cushion is configured for use by a child and having a backing layer thickness of between about 1.5cm and about 3cm, an inner layer thickness of
15 between about 4cm and about 6cm, a width of about 35cm and a length of about 49cm.

9. A head stabilising kit as claimed in claim 8 in which the cushion has a backing layer thickness of about 2cm.

20

10. A head stabilising kit as claimed in claim 8 or claim 9 in which the cushion has an inner layer thickness of about 5cm.

11. A head stabilising kit as claimed in any one of the preceding
25 claims in which the cushion is further provided with at least one recess shaped to permit a medical imaging compatible headset to be received therein, in use.

12. A head stabilising kit as claimed in claim 11 in which the recess
30 is provided by a slot in a surface of the inner layer of the cushion.

13. A head stabilising kit as claimed in claim 12 in which the recess has a width of approximately 10cm, a depth of approximately 4cm and a length of approximately 15cm.

14. A head stabilising kit as claimed in any one of claims 11 to 13 in which the cushion is provided with two substantially identical recesses located generally symmetrically about the widthways axis of the cushion.

5 15. A head stabilising kit as claimed in any one of the preceding claims in which the stabilising cushion is adapted to, in use, be generally curved in lengthways cross-section such that the inner layer provides a concave surface and the backing layer provides a convex surface.

10 16. A head stabilising kit as claimed in any one of the preceding claims in which the supporting cushion is provided with a protective cover extending over and enclosing both the inner layer and the backing layer therein, the cover optionally removable.

15 17. A stabilising cushion having a generally rectangular shape, characterised in that

it has a length of between about 45cm and about 53cm and a width of between about 30cm and about 40cm, such that it can be folded to mediolaterally cover the head of a person; and

20 is formed by an inner layer of resiliently compressible material having a thickness of between about 3cm and about 6cm and a backing layer of resiliently compressible material having a thickness of between about 0.5cm and about 3cm, the inner layer provided by a viscoelastic material capable of closely conforming to the contours of the head, and the backing layer
25 provided by a material having a higher resilience to deformation and a lower viscosity than the inner layer.

18. A stabilising cushion substantially as herein described with reference to the accompanying drawings.

30

19. A head stabilising kit substantially as herein described with reference to the accompanying drawings.

AMENDMENTS TO THE CLAIMS HAS BEEN FILED AS FOLLOWS:-

1. A head stabilising kit comprising:

5 a stabilising cushion having a generally rectangular shape,
characterised in that it has a length of between about 45cm and about 53cm
and a width of between about 30cm and about 40cm, such that it can be folded
to mediolaterally cover the head of a person, and is formed by an inner layer of
resiliently compressible material having a thickness of between about 3cm and
about 6cm and a backing layer of resiliently compressible material having a
10 thickness of between about 0.5cm and about 3cm, the inner layer provided by a
viscoelastic material capable of closely conforming to the contours of the head,
and the backing layer provided by a material having a higher resilience to
deformation and a lower viscosity than the inner layer; and

15 two elongate, wedge-shaped supporting elements shaped to be
insertable, in use, between the stabilising cushion and a surface of a magnetic
resonance imaging (MRI) scanner on either side of the stabilising cushion.

2. A head stabilising kit as claimed in claim 1 in which the viscoelastic
material is viscoelastic polyurethane foam having a density of between about
20 36kg/m³ and about 40kg/m³.

3. A head stabilising kit as claimed in claim 1 or claim 2 in which the
backing layer material is a non-viscoelastic plastics material.

25 4. A head stabilising kit as claimed in claim 3 in which the plastics
material is flexible polyether foam having a density of between about 35kg/m³
and about 45kg/m³ and a compression hardness of between about 4kPa and
about 5kPa.

30 5. A head stabilising kit as claimed in any one of the preceding claims
in which the cushion is configured for use by an adult and having a backing
layer thickness of between about 0.5cm and about 2cm, an inner layer
thickness of between about 3cm and about 5cm, a width of about 35cm and a
length of about 49cm.

6. A head stabilising kit as claimed in claim 5 in which the cushion has a backing layer thickness of about 1cm.

5 7. A head stabilising kit as claimed in claim 5 or claim 6 in which the cushion has an inner layer thickness of about 4cm.

10 8. A head stabilising kit as claimed in any one of claims 1 to 4 in which the cushion is configured for use by a child and having a backing layer thickness of between about 1.5cm and about 3cm, an inner layer thickness of between about 4cm and about 6cm, a width of about 35cm and a length of about 49cm.

15 9. A head stabilising kit as claimed in claim 8 in which the cushion has a backing layer thickness of about 2cm.

20 10. A head stabilising kit as claimed in claim 8 or claim 9 in which the cushion has an inner layer thickness of about 5cm.

25 11. A head stabilising kit as claimed in any one of the preceding claims in which the cushion is further provided with at least one recess shaped to permit a medical imaging compatible headset to be received therein, in use.

30 12. A head stabilising kit as claimed in claim 11 in which the recess is provided by a slot in a surface of the inner layer of the cushion.

35 13. A head stabilising kit as claimed in claim 12 in which the recess has a width of approximately 10cm, a depth of approximately 4cm and a length of approximately 15cm.

40 14. A head stabilising kit as claimed in any one of claims 11 to 13 in which the cushion is provided with two substantially identical recesses located generally symmetrically about the widthways axis of the cushion.

45 15. A head stabilising kit as claimed in any one of the preceding claims in which the stabilising cushion is adapted to, in use, be generally curved in lengthways cross-section such that the inner layer provides a concave

surface and the backing layer provides a convex surface.

5 16. A head stabilising kit as claimed in any one of the preceding claims in which the supporting cushion is provided with a protective cover extending over and enclosing both the inner layer and the backing layer therein, the cover optionally removable.

10 17. A head stabilising kit substantially as herein described with reference to the accompanying drawings.





Application No: GB1318310.8

Examiner: Mr David McWhirter

Claims searched: 1-19

Date of search: 11 April 2014

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
X	17	JP 2001095772 A (TOSHIBA) see English abstract and figures 2-4
A	None	US 2007/270683 A1 (MELOY)
A	None	US 4400820 A (O'DELL ET AL.)
A	None	CN 202636968 U (JIANG XIAOJING)
A	None	CN 201743695 U (YANLING LI)
A	None	WO 2013/010273 A1 (ZYSMAN)

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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

A47G; A61B; A61G

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI



Intellectual
Property
Office

International Classification:

Subclass	Subgroup	Valid From
None		