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(56) Documents Cited:
CN 213045424 U **CN 212787560 U**
CN 210747414 U **CN 208891754 U**
US 20210307431 A1

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INT CL **A41D**
Other: **WPI, EPODOC, Patent Fulltext**

(54) Title of the Invention: **Patient Garment and Garment Set**
Abstract Title: **Patient Pyjamas for PICC chemotherapy**

(57) A patient garment for permitting access for a peripherally inserted central catheter PICC line and/or for permitting access for blood sampling. In a first aspect the patient garment comprises a torso-covering portion 18, for covering a patient's torso and two arm-covering portions 20, for covering the patient's arms. Each arm-covering portion 20 has an upper-arm portion 22 for covering a patient's upper arm and a lower-arm portion 24 for covering a patient's lower arm. At least one of the arm-covering portions 20 has an arm opening 26 at or adjacent to the upper-arm portion 22 for providing access to a body of the patient, and an arm-opening closure means 32 for closing the arm opening 26. In a second aspect the torso covering portion 18 comprises a torso opening 42 at or adjacent to the lower edge 38 of the torso portion. Preferably the torso opening is situated off centre, that is to say displaced laterally to the median.

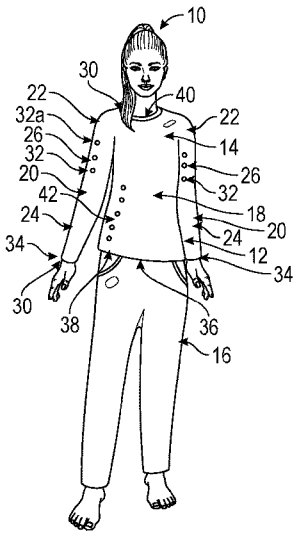

FIG. 1

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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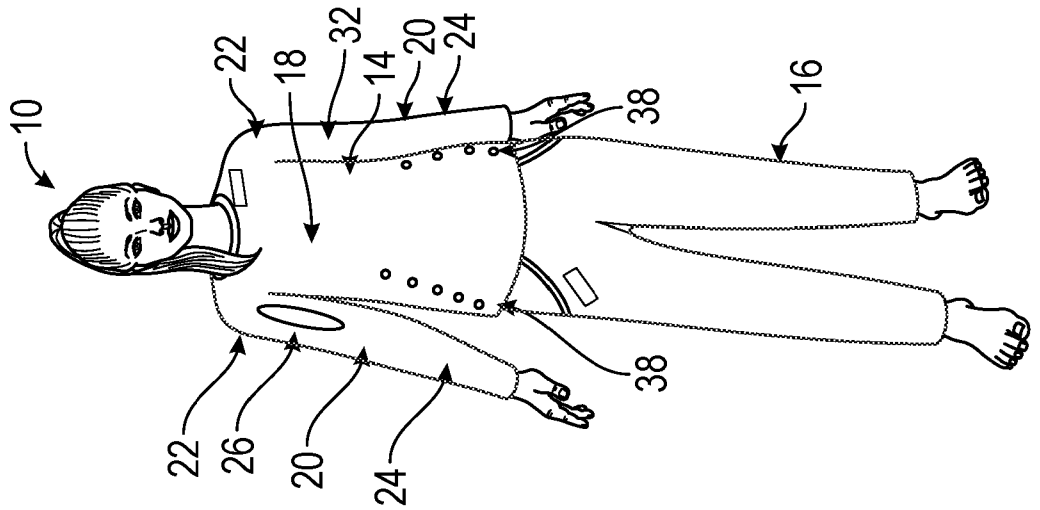

FIG. 2

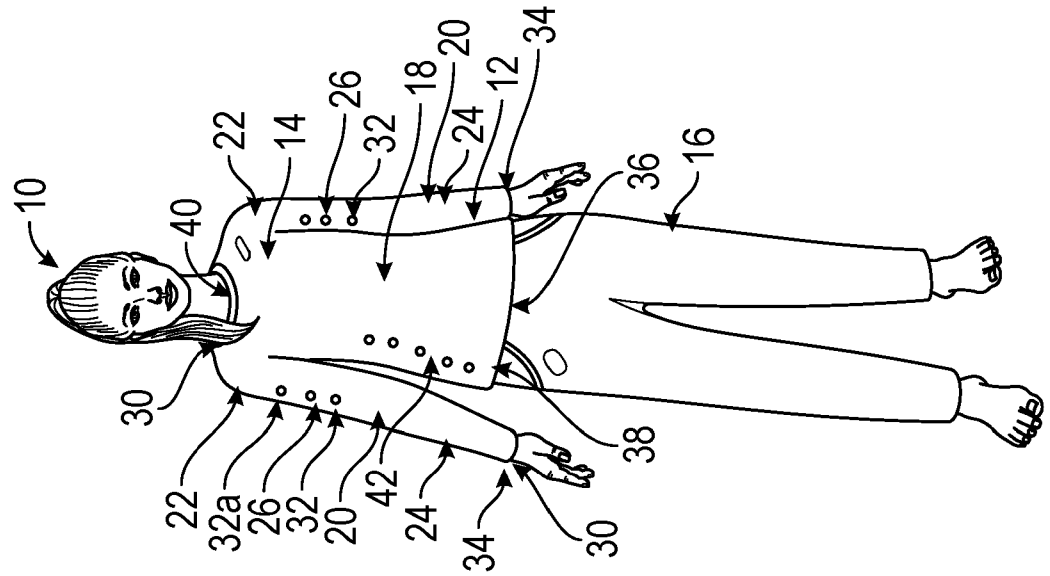

FIG. 1

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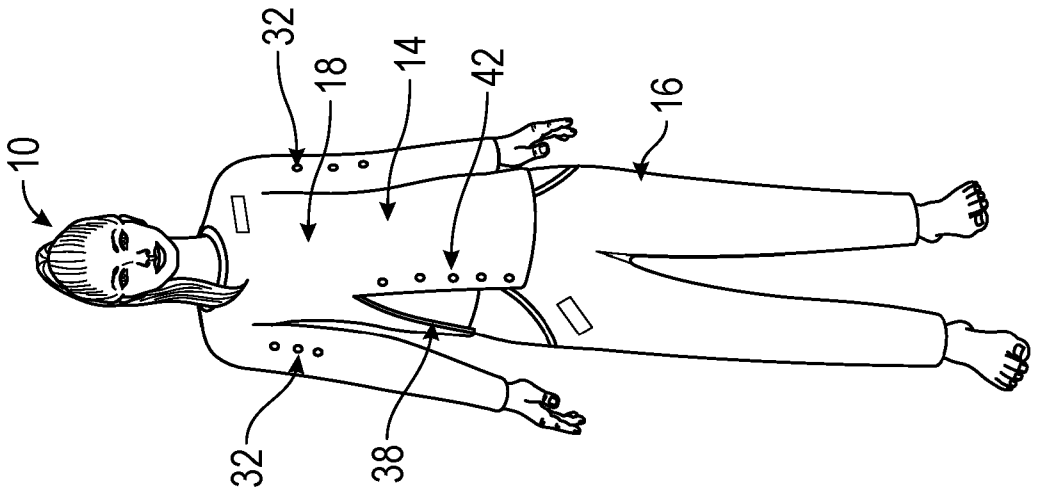

FIG. 3

Patient Garment and Garment Set

The present invention relates to a patient garment, particularly for permitting access for a peripherally inserted central catheter PICC line and/or for permitting access for blood sampling or donation. The invention further relates to a garment set.

A PICC line is typically used to deliver medication, such as chemotherapy drugs, close to a patient's heart. The PICC line is typically inserted into the body via a vein in the upper arm, for example just above the elbow.

The PICC line is in place for a long duration of time and access to an inlet of the PICC line at the patient's arm is regularly required to administer medication and for maintenance purposes. This typically happens in a clinical environment and can take some time.

If the patient is wearing a long sleeved upper-body garment, then the patient is required to remove the garment to enable access to the PICC line. This can be embarrassing for the patient, particularly if the patient is a child, in view of being unclothed in an unfamiliar clinical environment. Additionally, this can be uncomfortable for the patient, particularly if the environment is cold.

Therefore, it would be desirable to provide more dignity and comfort for patients in these circumstances.

The present invention seeks to provide a solution to these problems.

According to a first aspect of the present invention, there is provided a patient garment for permitting access for a peripherally inserted central catheter PICC line and/or for permitting access for blood sampling or donation, the patient garment comprising: a torso-covering portion, for covering a patient's torso; and two arm-covering portions, for covering the patient's arms, each arm covering portion having an upper-arm portion for covering the patient's upper arm and a lower-arm portion for covering the patient's lower arm; at least one of the arm-covering portions having an arm opening for providing access to a body of the patient and an arm-opening closure means for closing the arm opening, the arm opening being at or adjacent to the upper arm portion and not extending to an edge of the garment.

The arm opening at or adjacent to the upper arm portion allows for a PICC line to be accessed for treatment or maintenance purposes without the patient having to remove the garment. Similar applies for blood sampling, blood donation, blood transfusion, or any other procedure which requires access to the skin of the arm of the patient. As such, the patient would be more comfortable and at ease. The closure means allows for the opening to be closed again and therefore the garment to appear and/or function as a conventional garment when access to the arm is not required.

Preferably, the torso covering portion may have an inferior and superior edge, a torso opening at or adjacent to the inferior edge and which does not extend to the superior edge for providing access to the body of the patient, and a torso-opening closure means for closing the torso opening. A torso opening at the inferior edge similarly allows for access to the abdomen, if a PICC line or blood sample is required here.

Whilst an arm opening is preferred, and both an arm opening and torso opening is most preferred, it will be appreciated that the arm opening may be omitted and at least one torso opening may be included instead.

Advantageously, the torso opening may extend to the inferior edge. As such, the opening effectively forms flaps at the inferior edge, which can permit for greater access to the torso.

Beneficially, the torso opening may be positioned away from a centreline of the patient garment. A more lateral positioning may provide for improved access to the torso for a PICC line.

In a preferable embodiment, there may be one torso opening and torso-opening closure means at either side of the centreline of the patient garment. As such, either side of the patient's torso can be accessed.

Preferably, each arm-covering portion may have at least one arm opening and at least one closure means. As such, either arm can be accessed.

Optionally, the closure means may comprise at least one button.

Advantageously, the closure means may be non-metallic. As such, the garment can be worn during X-ray imaging without disrupting the radiograph. The closure means may also not comprise other high-density materials, for the same reason.

Additionally, the closure means may comprise at least one button formed from plastics. Plastics is a low-density material and so would not disrupt the radiograph. A button is a closure means which can be conveniently formed from plastics.

Beneficially, the closure means may be positioned so as to in use be away from an outside facing lateral surface of the patient's upper arm. As such, since the garment is preferably nightwear, the patient may lie on their side in bed without the closure means pressing into the patient's arm.

Preferably, the patient garment may comprise cotton. Furthermore, the patient garment may consist or consist essentially of cotton. Cotton is a light and breathable material, and therefore may be suitable for patient comfort, particularly if the garment is nightwear.

Optionally, the lower-arm portion may have an elasticated cuff. Alternatively, the lower-arm portion may have a non-elasticated cuff. Either version may be considered based on patient preference.

Advantageously, the patient garment may be sized for a child. Children can be particularly uncomfortable removing a garment in a clinical environment.

Beneficially, the patient garment may be nightwear.

Optionally, the patient garment may comprise a water-resistant material around the arm opening. This may be useful to prevent the garment becoming water-logged during PICC insertion or maintenance. For example, if the skin is required to be cleaned or sterilised with liquid, then the water-resistant material may be useful in this circumstance. Similar may be the case for the torso opening.

Preferably, the patient garment is an upper-body garment.

According to a second aspect of the invention, there is provided a patient garment for permitting access for a peripherally inserted central catheter PICC line and/or for permitting access for blood sampling, the patient garment comprising: a torso-covering portion, for covering a patient's torso; and two arm-covering portions, for covering the patient's arms; the torso covering portion having an inferior edge and a superior edge, a torso opening at or adjacent to the inferior edge and which does not extend to the superior edge, the torso opening for providing access to the body of the patient, and a torso-opening closure means for closing the torso opening.

Preferably, each arm covering portions may only have an upper-arm portion for covering the patient's upper arms. As such, the patient garment may be considered to be a short-sleeved T-shirt.

Preferably or optional features of the first aspect of the invention may also be provided for the second aspect of the invention.

According to a third aspect of the invention, there is provided a patient garment set including an upper-body garment and a lower body garment.

Advantageously, the lower body garment comprises trousers, such as pyjama trousers or pyjama bottoms.

According to a fourth aspect of the invention, there is provided a PICC-garment system comprising a PICC line and a garment or garment system according to the first or second aspect of the invention.

The invention will now be more particularly described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a representation of a child in a patient garment set in accordance with a third aspect of the invention, having a patient garment in accordance with a first aspect of the invention, an arm opening and torso opening being in closed conditions;

Figure 2 shows the child, patient garment set, and patient garment of Figure 1, with one arm opening in an open condition, one arm opening in a closed condition, and two torso openings in a closed condition; and

Figure 3 shows the child, patient garment set, and patient garment of Figure 1, with one torso opening in an open condition, and the arm openings in closed conditions.

Referring firstly to Figure 1, there is shown a child who is a patient 10 in a patient garment set 12. The patient garment set 12 includes an upper-body patient garment 14 and a lower-body patient garment 16.

The upper-body patient garment 14 has a torso-covering portion 18, for covering the patient's torso and two arm-covering portions 20, for covering the patient's arms. The upper body garment 14 is long sleeved garment, and so may be considered to be a long-sleeved top or long-sleeved T-shirt. As such, each arm-covering portion 20 has an

upper-arm portion 22 for covering a patient's upper arm and a lower-arm portion 24 for covering a patient's lower arm.

At least one of the arm-covering portions 20 has an arm opening 26 at or adjacent to the upper-arm portion 22 for providing access to a body of the patient. Preferably, both arm-covering portions 20 have one arm opening 26, and the arm openings 26 are preferably symmetrically positioned relative to each other. The arm openings 26 allow access to the body since they are through-holes or apertures.

The or each arm opening 26 is preferably positioned so as to be adjacent to an elbow of the patient, and most preferably extends from just above or just proximal to the elbow. The or each arm opening 26 is elongate and may be, for example, at least 100 mm long and may be less than 200 mm long. The or each arm opening 26 may be considered to be slit-shaped or substantially slit shaped.

The or each arm opening 26 may be positioned to optimise access to a vein. In some instances, the arm opening 26 may be positioned at or adjacent to an inside surface of the arm, although it will be appreciated that in other instances the arm opening 26 be positioned at or adjacent to an outside surface of the arm.

The arm or each opening 26 preferably does not extend to an edge or end of the garment, such as to an end of the sleeve 28 or to a neckline 30. However, in some instances it will be appreciated that an arm opening which extends to the sleeve or to the neckline may be preferred.

There is provided an arm-opening closure means 32 is for closing the or each arm opening 26. The arm-opening closure means 32 may comprise at least one button, and preferably here comprises a plurality of buttons 32a. As such, there is at least one button on one side of the arm opening 26, and at least one corresponding button receiving hole on the other side of the arm opening 26. Fabric of the garment around the arm opening 26 may be configured to overlap to allow convenient closure by the buttons.

The closure means is non-metallic, and therefore preferably the buttons 32a are non-metallic and most preferably are formed from plastics.

The closure means 32 may be positioned so as to in use be away from an outside facing lateral surface of the user's upper arm.

Although buttons are described, it will be appreciated that other closure means may be considered, such as a zip or hook-and-loop fasteners. As before, preferably the zip and hook-and-loop fasteners would not include metal, in particular a zip formed from plastics may be considered.

It will be appreciated in some instances the closure means may be omitted entirely.

Some version of the garment may have the lower-arm portion 24 with an elasticated cuff 34, while others may have a lower-arm portion 24 with a non-elasticated cuff.

Since the patient garment is preferably an upper body garment 14 only, the torso-covering portion 18 has an inferior or lower edge 36. At least one torso opening 38 is at or adjacent to the inferior edge 36 for providing access to the body of the patient. The torso opening 38 extends to the inferior edge 36, and as such the torso opening 38 may be considered a cut or slit into the garment. The torso opening 38 extends perpendicularly or substantially perpendicularly to the inferior edge 36 of the torso-covering portion 18. The garment may be considered to form a flap at each side of the torso opening 38.

The torso opening 38 does not extend to a superior or upper edge of the garment 40. However, in some instances it will be appreciated that a torso opening 38 which extends to the superior edge may be preferred.

Although described as extending to the inferior edge 36, it will be appreciated that this may not be the case and instead the torso opening may terminate before the inferior edge.

Preferably, the torso opening 38 is off-centre and to one side, and is therefore positioned away from a centreline of the patient garment 14. Preferably, there are at two torso openings 38, and so here there is a torso opening 38 at either side of the centreline of the patient garment 14.

Similar to the or each arm opening 26, the or each torso opening 38 is elongate and may be, for example, at least 100 mm long and may be less than 200 mm long. The or each torso opening 38 may be considered to be slit-shaped or substantially slit-shaped.

The or each torso opening 38 has a torso-opening closure means 42 for closing the torso opening 38. The torso-opening closure means 42 may be similar or identical to the arm-opening closure means 32.

The patient garment 14 preferably comprises, consists, or consists essentially of cotton. Additionally, the patient garment 14 may be considered to be an item of nightwear, such as a pyjama top. Therefore, the garment is preferably formed from thin fabric.

However, it will be appreciated that the garment may instead be a jumper, sweater, or hooded sweatshirt, and therefore thicker fabric and alternative materials may be considered. Additionally, the garment may be a long-sleeve T-shirt.

Whilst a solely cotton construction is generally preferred, it will be appreciated that around the arm opening 26 a water-resistant material may be considered.

The lower-body patient garment 16 preferably comprises trousers, and is similarly nightwear. The lower-body patient garment 16 may be conventional pyjama trousers . However, shorts may also be considered.

Although a two-piece set is preferred, it will be appreciated that the upper-body patient garment 14 may be provided separately, and/or a one-piece garment comprising integral upper body and lower body portions may be considered.

The patient garment set 12 is preferably sized for a child 10, although it will be appreciated that adult, adolescent, or infant sizes may also be considered.

In use, the upper-body patient garment 14 is generally worn with the closure means 32, 42 fastened in a closed condition such that the arm opening 26 and torso opening 38 is closed or occluded. This is as shown in Figure 1.

When a PICC line is required to be accessed, or a blood sample or donation required to be taken, the closure means 32, 42 at the arm opening 26 and/or torso opening 38 can be unfastened so that the arm opening 26 and/or torso opening 38 is opened. This is as shown in Figures 2 and 3 respectively.

Therefore, a medical practitioner is able to access the body of a patient without having to have the garment 14 removed, preserving more of the patient's dignity and comfort.

The PICC line can then be accessed for maintenance or treatment purposes, or a blood sample or donation can then be taken.

The arm opening 26 and/or torso opening 38 may then be closed via the closure means 32, 42.

Whilst a long-sleeved garment is described and shown, it will be appreciated that a short-sleeved garment may be considered. In a short-sleeved garment, an arm opening may not be required, and therefore this would be omitted. However, the or each torso opening would still be present.

It is therefore possible to provide a garment which has an arm opening for allowing access to a patient's arm and/or a torso opening for allowing access to a patient's torso. The openings can be opened and closed by respective closure means. As such, the garment is not required to be removed to allow access for a PICC line or for blood sampling.

The words 'comprises/comprising' and the words 'having/including' when used herein with reference to the present invention are used to specify the presence of stated features, integers, steps or components, but do not preclude the presence or addition of one or more other features, integers, steps, components or groups thereof.

It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable sub-combination.

The embodiments described above are provided by way of examples only, and various other modifications will be apparent to persons skilled in the field without departing from the scope of the invention as defined herein.

Claims

1. A patient garment for permitting access for a peripherally inserted central catheter PICC line and/or for permitting access for blood sampling or donation, the patient garment comprising:

   a torso-covering portion, for covering a patient's torso; and

   two arm-covering portions, for covering the patient's arms, each arm covering portion having an upper-arm portion for covering the patient's upper arm and a lower-arm portion for covering the patient's lower arm;

   at least one of the arm-covering portions having an arm opening for providing access to a body of the patient and an arm-opening closure means for closing the arm opening, the arm opening being at or adjacent to the upper arm portion and not extending to an edge of the garment.

2. A patient garment as claimed in claim 1, wherein the torso covering portion has an inferior edge, a torso opening at or adjacent to the inferior edge for providing access to the body of the patient, and a torso-opening closure means for closing the torso opening.

3. A patient garment as claimed in claim 2, wherein the torso opening extends to the inferior edge.

4. A patient garment as claimed in claim 2 or claim 3, wherein the torso opening is positioned away from a centreline of the patient garment.

5. A patient garment as claimed in claim 4, wherein there is one torso opening and torso-opening closure means at either side of the centreline of the patient garment.

6. A patient garment as claimed in any one of the preceding claims, wherein each arm-covering portion has at least one arm opening and at least one closure means.

7. A patient garment as claimed in any one of the preceding claims, wherein the closure means comprises at least one button.

8. A patient garment as claimed in any one of the preceding claims, wherein the closure means is non-metallic.

9. A patient garment as claimed in claim 7 and claim 8, wherein the closure means comprises at least one button formed from plastics.

10. A patient garment as claimed in any one of the preceding claims, wherein the closure means is positioned so as to in use be away from an outside facing lateral surface of the patient's upper arm.

11. A patient garment as claimed in any one of the preceding claims, wherein the patient garment comprises cotton.

12. A patient garment as claimed in claim 11, wherein the patient garment consists or consists essentially of cotton.

13. A patient garment as claimed in any one of the preceding claims, wherein the lower-arm portion has an elasticated cuff.

14. A patient garment as claimed in any one of the preceding claims, wherein the lower-arm portion has a non-elasticated cuff.

15. A patient garment as claimed in any one of the preceding claims, wherein the patient garment is sized for a child.

16. A patient garment as claimed in any one of the preceding claims, wherein the patient garment is nightwear.

17. A patient garment as claimed in any one of the preceding claims, wherein the patient garment comprises a water-resistant material around the arm opening.

18. A patient garment for permitting access for a peripherally inserted central catheter PICC line and/or for permitting access for blood sampling or donation, the patient garment comprising:

a torso-covering portion, for covering a patient's torso; and

two arm-covering portions, for covering the patient's arms;

the torso covering portion having an inferior edge and a superior edge, a torso opening at or adjacent to the inferior edge and which does not extend to

the superior edge, the torso opening for providing access to the body of the patient, and a torso-opening closure means for closing the torso opening.

19. A patient garment as claimed in claim 18, wherein each arm covering portions only has an upper-arm portion for covering the patient's upper arms.

20. A patient garment as claimed in any one of the preceding claims, wherein the patient garment is an upper-body garment.

21. A patient garment set including an upper-body garment as claimed in claim 18, and a lower body garment.

22. A patient garment set, as claimed in claim 21, wherein the lower body garment comprises trousers.

23. A PICC-garment system comprising a PICC line, and a patient garment or patient garment set as claimed in any one of the preceding claims.

Intellectual Property Office

Application No:	GB2209123.5	**Examiner:**	Mr Chris Morris
Claims searched:	1-17, (20, 23 in part)	**Date of search:**	20 December 2022

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	1, 5-17, 20, 23	US2021/0307431 A1 (NAU) Whole document
X	1-17, 20, 23	CN213045424 U (ZHU) Whole document (machine trans.) + Please see attached abstract
X	1-17, 20, 23	CN210747414 U (DENG) Whole document (machine trans.) + Please see attached abstract
X	1-17, 20, 23	CN208891754 U (ZHANG) Whole document (machine trans.) + Please see attached abstract
X	1-17, 20, 23	CN212787560 U (WANG) Whole document (machine trans.) + Please see attached abstract

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

A41D

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

WPI, EPODOC, Patent Fulltext

Intellectual Property Office

International Classification:

Subclass	Subgroup	Valid From
A41D	0013/12	01/01/2006
A41D	0010/00	01/01/2006