A piece of furniture 10 with a detachable component 17a and 19a comprising expanded polypropylene (PPE) and a method of cleaning it comprising the steps of detaching the component 17a and 19a, cleaning it and then reattaching it. The furniture piece may be a chair and may have detachable cushion 17b and 19b and upholstery elements which can be individually cleaned and replaced. The cleaning may include sterilising, disinfecting or washing and may use a dishwasher, an autoclave, a steam cleaner, a microwave or x-ray apparatus. The arrangement may be of particular use in the medical industry.
FURNITURE CLEANING

Field of the Invention

The present invention relates to cleaning furniture.

Background of the Invention

After a period of prolonged use, it is important for furniture to be cleaned and/or sanitised in order, for instance, to conform to minimum standards of health and safety. In particular, in the medical care industry, and, more specifically, in hospitals, the cleaning of furniture is of great importance given the high level of sanitation, sterility and hygiene required.

In such environments, the cleaning of furniture must be carried out on a regular and often frequent basis, as well as at an intensive level and on a large scale to accommodate the high number of individuals passing through a hospital, for example. Additionally, the efficient mass cleaning of furniture helps prevent the spread of disease and infection, maintains acceptable sanitation levels, and extends the life of the furniture. There is therefore a clear need for items of furniture and related cleaning methods that allow one to rapidly and efficaciously clean furniture on a large scale whilst using thorough and intensive cleaning methods. The present invention seeks to meet this need.

Summary of the Invention

According to a first aspect of the present invention, there is provided a method of cleaning an item of furniture. The item of furniture has a detachable component comprising expanded polypropylene (EPP). The method comprises the steps of detaching the detachable component from the item of furniture, cleaning the detached component, and reattaching the detached component to the item of furniture.
The method provides an efficient way of systematically and intensively mass-cleaning units of furniture rapidly and without damage to the detachable EPP components.

Advantageously, the step of cleaning the detached component comprises sterilising and/or disinfecting and/or washing the detached component.

Advantageously, the step of cleaning the detached component comprises placing the detached component in one of a dishwasher, an autoclave, a steam cleaner, a washing machine, a microwave oven and an x-ray apparatus. The intensive nature of the cleaning produced by such apparatuses does not damage the detachable EPP component due to the durability, resilience, wide temperature tolerance, and chemical and water-resistant properties of the EPP.

Advantageously, the item of furniture further comprises a cushioning member detachably attached to the detachable component. The method further comprises the steps of, after detaching the detachable component from the item of furniture, detaching the cushioning member from the detached component, and, after cleaning the detached component, reattaching the cushioning member to the detached component. The cushioning member provides a soft layering and comfort for a user of the unit of furniture. More advantageously, the method further comprises, after detaching the cushioning member from the detached component, cleaning the detached cushioning member.

Advantageously, the item of furniture further comprises upholstery detachably attached to the detachable component. The method further comprises the steps of, after detaching the detachable component from the item of furniture, detaching the upholstery from the detached component, and, after cleaning the detached component, reattaching the upholstery to the detached component. More advantageously, the method further comprises, after detaching the upholstery from the detached component, cleaning the detached upholstery.

The upholstery and/or cushioning member may be cleaned according to any of the methods described above, provided that such methods generally do not damage or spoil the upholstery and/or cushioning member. This way, the entire unit of furniture may be rendered completely clean (and/or sanitised and/or sterilised) without having damaged any of the detachable components. This
significantly increases the lifetime of the furniture since worn-out parts of the unit of furniture may be individually replaced rather than having to replace the unit as a whole when one part needs to be replaced.

In a second aspect of the present invention, there is provided an item of furniture having a detachable component comprising expanded polypropylene (EPP), wherein the detachable component is capable of being cleaned.

Advantageously, the item of furniture further comprises a cushioning member detachably attached to the detachable component. More advantageously, the item of furniture further comprises upholstery detachably attached to the detachable component.

Advantageously, the item of furniture further comprises a frame, the detachable component being attachable to the frame. More advantageously, the frame comprises polypropylene and/or EPP and/or wood and/or laminate wood and/or metal. An EPP frame allows a user of the unit of furniture to clean the frame using some of the more intensive methods described above without risk of damaging the frame.

In a third aspect of the present invention, there is provided a combination of an item of furniture according to the second aspect, and a dishwasher, an autoclave, a steam cleaner, a washing machine, a microwave oven, or an x-ray-producing apparatus, for cleaning the detachable component.

**Brief Description of the Drawings**

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

Fig. 1 is a perspective view of a chair according to a first embodiment of the present invention;

Fig. 2 shows the chair of Figure 1 with the seat and seat back of the chair detached from the frame;
Fig. 3 shows the chair of Figure 2 with the upholstery of the seat and seat back removed;
Fig. 4 is an exploded view of the chair of Figure 3;
Fig. 5 is a perspective view of a chair in accordance with a second embodiment of the present invention; and
Fig. 6 shows the chair of Figure 5 with the seat, seat back and armrests of the chair detached from the frame.

**Detailed Description of the Drawings**

The present invention seeks to provide an item of furniture and a method of cleaning furniture. Whilst various embodiments of the invention are described below, the invention is not limited to these embodiments, and variations of these embodiments may well fall within the scope of the invention which is to be limited only by the appended claims.

Figures 1 to 4 show a chair 10 in accordance with a first embodiment of the present invention. The chair 10 is shown in progressive stages of dismantlement as will be described below with reference to Figures 1 to 4.

The chair 10 of Figure 1 comprises a frame 12, a seat 17 and a seat back 19.

The frame 12 may be made from any material strong enough to bear the weight of an individual, such as wood, laminate wood, metal or plastic. The frame 12 comprises legs 16, arms 18 and at least one or more support slats 15. The support slats 15 receive the seat 17 such that the seat 17 is substantially horizontal to the floor and such that an individual may seat themselves comfortably on the seat 17. The seat 17 is positioned between the legs 16 and the arms 18 and abuts against the seat back 19. The seat back 19 is positioned substantially perpendicularly to the seat 17.

The seat 17 is detachably fixed to the frame 12 using any conventional fixing means, such as screws, bolts, Velcro®, snap-fit connections, etc. In the embodiment of Figure 1, the seat 17 is merely placed on the frame 12 and is supported by the slats 15. Secure placement of the seat 17 between the legs 16
and the arms 18 of the chair 10 may be achieved by requiring a close fit of the
seat 17 between the legs 16 and the arms 18, i.e. the seat 17 is wedged securely
between the legs 16 and the arms 18 of the chair 10.

The seat back 19 is positioned substantially vertically in relation to the floor
such that an individual seating themselves in the chair 10 may rest their back
against the seat back 19. The seat back 19 is positioned substantially between
the rearmost legs 16a of the chair 10 and is detachably fixed to the frame 12
using any conventional means as mentioned above. In the embodiment of Figure
1, the seat back 19 is fixed to the frame 12 using screws 13 driven through the
slats 15. Both the seat 17 and the seat back 19 are detachably attached or
affixed to the frame 12 such that once detached from the frame 12, the seat 17
and the seat back 19 may be easily reattached or reaffixed without damaging the
frame 12, the seat 17 or the seat back 19.

The seat 17 and the seat back 19 each comprise a number of
subcomponents as will be described in more detail below with reference to
Figures 3 and 4. Each includes an expanded polypropylene component
(otherwise known as EPP or Arpro®) and a cushioning member, both being
covered by upholstery 14. The EPP lends structural rigidity to the chair 10 in its
assembled state (Figure 1), and its lightweight characteristics render the chair 10
easily moveable by an individual. Furthermore, the EPP provides structural
resilience and strength, particularly under compression. EPP may be moulded
into a wide variety 3-D shapes such that a chair component formed from EPP
may be comfortable for individuals seating themselves in the chair 10, even
without the use of the cushioning (see below). EPP is also 100% recyclable. The
upholstery 14 substantially entirely covers the seat 17 and the seat back 19 such
that, to an individual facing the chair 10 from most angles, only the upholstery 14
can be seen covering the seat 17 and the seat back 19. The upholstery 14 is
detachably affixed to the seat 17 and the seat back 19 using any conventional
means, and typically using Velcro® or a zip.

Turning to Figure 2, the chair 10 is shown in its first stage of
dismantlement with the seat 17 and the seat back 19 detached from the chair 10.
The seat 17 has simply been removed from its position between the arms 18, and
the seat back 19 has been removed from its position from between the rearmost legs 16a, e.g. by unscrewing the screws 13 from the slats 15.

Modular furniture of the kind described above allows one to assemble furniture with differing physical properties, and allows one to construct furniture such that the overall shape or dimension of the furniture may vary as a function of its individual constituent components. This may provide for furniture which can be broken down into its individual constituent components, each component of a smaller size than the furniture unit as a whole when fully assembled. For instance, as can be seen in Figure 2, the detachment of the seat 17 and the seat back 19 has reduced the chair 10 to its three individual components: the seat 17, the seat back 19 and the frame 12.

Figure 3 shows the chair 10 of Figure 2 with the seat 17 and the seat back 19 of the chair 10 stripped of their upholstery 14 so as to each reveal their respective EPP components 17a and 19a and their respective cushioning members 17b and 19b. In this manner, the seat 17 and the seat back 19 each comprise a respective base layer of EPP 17a and 19a detachably joined to a respective top layer of cushioning in the form of respective cushioning members 17b and 19b. In the embodiment of Figures 1 to 4, the cushioning members are polyurethane foam pillows, hereinafter referred to as pillows 17b and 19b. Any type of soft filling or webbing, etc., could alternatively be used to form the cushioning members 17b and 19b, such as spun man-made fibre or spun cotton fibre. While the EPP components 17a and 19a provide a firm base to withstand the weight of a person using the chair 10, the pillows 17b and 19b each provide a deformable, soft layering over the respective EPP components or layers 17a and 19a and provide comfort for an individual wishing to use the chair 10.

Each pillow 17b, 19b may be affixed to its respective EPP component 17a, 19a using conventional means such as Velcro® or may simply rest against its respective EPP component 17a, 19a through the conformation of the complementary shapes of each pillow 17b and 19b and its respective EPP component 17a and 19a. The EPP components 17a and 19a and the pillows 17b and 19b have a substantially constant thickness, but may include variations in their thickness depending on the part of the chair 10 over which they are placed.
For instance, the pillow 17b and the EPP component 17a of the seat 17 may be thicker than the pillow 19b and the EPP component 19a of the seat back 19 since it is the seat 17 which receives the most weight when an individual seats themselves. In one embodiment, the pillow 17b has a thickness of 6 cm, and the pillow 19b has a thickness of 4 cm. In this embodiment, the EPP component 17a of the seat 17 has a thickness of 6.8 cm at its thickest point on the seat 17, and the EPP component 19a of the seat back 19 has a thickness of 5 cm at its thickest point on the seat back 19. In one embodiment, the EPP components 17a and 19a have a density ranging from 15 gr/l to 250 gr/l, and preferably have a density of around 80 gr/l.

The pillows 17b and 19b may each be placed wholly within respective water-impervious bags, sacs, covers, or the like (not shown). The waterproof covers each completely cover their respective pillows 17b and 19b and provide protection from liquids which may be used during the cleaning of the chair 10 as will be described in more detail below. The waterproof covers also each protect their respective pillows 17b and 19b during general use of the chair (e.g. from liquid spillages and the like). Alternatively, if the cushioning members are formed from a tumble-drier-proof material, such as spun man-made or cotton fibre, rather than polyurethane foam, the cushioning members may be placed in a water-permeable bag. Such an arrangement renders the cushioning members suitable for placement in a washing machine for cleaning and then a tumble-drier for drying.

Figure 4 shows an exploded view of the chair 10 of Figure 3. Unlike in Figure 3, the seat 17 and the seat back 19 of the chair 10 in Figure 4 are shown with the EPP components 17a and 19a and the pillows 17b and 19b detached from one another. For example, when the upholstery 14 is removed from the seat 17 and the seat back 19 (transitioning from Figure 2 to Figure 3), each of the pillows 17b and 19b may separate from each of their respective EPP components 17a and 19a since the upholstery 14 is no longer keeping them bound to one another. Alternatively, the coupling means attaching each EPP layer 17a and 19a to its respective pillow 17b and 19b may be undone (the Velcro® is detached, or
perhaps the snap-fit connections are disconnected, etc.) in order to separate the layers one from the other. This leads to the arrangement shown in Figure 4.

The present invention provides a method of cleaning a unit of furniture, such as the chair 10 shown in Figures 1 to 4, as described below.

The seat 17 and seat back 19 of the chair 10 may be detached from the frame 12 as shown in Figure 2. Subsequently, the upholstery 14 is removed and thus reveals the seat pillow 17b and the seat back pillow 19b (with or without respective water-impervious covers surrounding them) and their respective EPP components 17a and 19a. The EPP components 17a and 19a may then be detached from the pillows 17b and 19b as described above. Once the upholstery 14, the EPP components 17a and 19a and the pillows 17b and 19b have been separated (Figure 4), the EPP components 17a and 19a are then cleaned according to any of the methods described below.

Cleaning of the detachable EPP components 17a and 19a may be accomplished in a variety of ways, including washing with detergents and soaps, acid and alkali solutions, antiseptics, alcohol, peroxides including hydrogen peroxide and ethylene oxide, percetic acid; steam cleaning using high pressure water (with or without additives); machine washing, e.g. using a washing machine or dishwasher or any other agitating system; steam cleaning using an autoclave (with a steam pressure setting of less than 4 bar, and preferably less than 2 bar so as to avoid high temperatures which may melt or deform the EPP); microwaving; and cleaning using x-rays. Other methods may be used for cleaning the EPP components 17a, 19a such that the EPP content is not damaged. Due to the low stiffness, good impact characteristics, durability, resilience, wide temperature tolerance and water-resistant properties of EPP, the more intensive of the cleaning methods described above do not damage the EPP components 17a and 19a. Advantageously, the EPP components 17a and 19a are subjected to the more intensive cleaning methods described above so as to provide more thorough cleaning of the EPP components 17a and 19a. Cleaning of the EPP components 17a and 19a in an autoclave or industrial dishwasher is particularly advantageous as a means of sterilising large numbers of such EPP components
17a and 19a efficiently. Cleaning methods involving high temperatures are also advantageous for more thorough cleaning.

Having detached the pillows 17b and 19b from the chair 10, the pillows 17b and 19b may be cleaned using an appropriate method. For example, cushioning members such as the foam pillows 17b and 19b of Figures 1 to 4 placed in respective water-impervious bags, sacs or covers may be wiped down. Alternatively, cushioning members formed from spun man-made or cotton fibre in water-permeable bags, sacs or covers may be placed in a washing machine for intensive cleaning, and then tumble-dried.

The upholstery 14 may also be cleaned according to the cleaning instructions for the upholstery fabric. The frame 12 may also be cleaned (e.g. wiped down) while the chair is in its deconstructed state. Once the individual chair components have been cleaned, the chair 10 is reassembled. For example, the unit of furniture may then resemble the chair 10 as depicted in Figure 1.

In the embodiment described above, there is provided a chair 10 comprising a plurality of detachable components which may be cleaned piecemeal – that is to say, each component may be cleaned according to one or more of the methods described above most suited for the type of material from which the component is fabricated. The EPP components 17a and 19a may be subjected to some of the more intense cleaning methods described above without suffering damage or physical abuse. Such intensive methods may be unsuited to non-EPP furniture components that could potentially be damaged if such methods were applied to them. For instance, the high temperatures, pressures, and/or corrosiveness associated with some of the above cleaning methods may damage (e.g. warp, melt, discolour) non-EPP furniture components. Wood, for example, generally cannot withstand the high temperatures and pressures associated with steam cleaning in an autoclave. Furthermore, though relatively inexpensive and resistant to standard washing techniques, standard non-EPP plastic furniture is typically less structurally rigid than wooden and metal furniture. Accordingly, it may be more appropriate to clean the non-EPP components using methods more suited to the material of the
non-EPP components (e.g. such as washing using detergents and soaps, or simple disinfectants, etc).

The versatility of EPP with respect to the many and varied cleaning methods which may be applied to it without causing damage to the EPP is a major advantage provided by the present invention. A further significant advantage of the furniture and cleaning methods described above is that worn-out or damaged components of the chair may be replaced without the need to replace the whole chair and, as a result, the chair is afforded a longer lifetime and is more economic.

Modular furniture which can be dismantled enables cleaning the individual components more thoroughly by dismantling them from the full-size furniture unit and then cleaning or washing each component individually. By providing detachable furniture components which comprise EPP, it is possible to clean an item of furniture by fully dismantling it, cleaning the individual components and reconstructing the item of furniture. Worn-out components may be discarded without the need to discard the item of furniture as a whole. The item of furniture may be thoroughly disinfected and the life of the product is much extended. Mass sterilisation of units of furniture and furniture components is thus made possible without the need for expensive replacement of units of furniture, which may be required with conventional furniture and conventional cleaning methods once one component of the furniture has been damaged.

Whilst a specific embodiment of the invention has been described above with reference to the chair 10 as shown in Figures 1 to 4, it is to be noted that many variations may be made to the invention without departing from the scope of the invention as a whole. For instance, the frame 12 of the chair 10 may also comprise EPP, and may in itself comprise detachable components. The frame 12 may then be broken down into its individual constituent components, such as the slats 15, the legs 16 and the arms 18. In so doing, these individual elements of the frame 12 may be cleaned using any of the methods described above, and then reassembled together so as to reproduce the chair 10 in its entirety. The chair 10 may additionally comprise detachable armrests, headrests, or other
detachable components, which may comprise EPP, polypropylene or other similar thermoplastics.

Figure 5 shows a second embodiment in accordance with the present invention. In this embodiment, there is provided a chair 50 having a frame 52, a detachable seat 57, a detachable seat back 59 and two detachable armrests 58. The frame 52 is formed from a single, unitary piece of EPP. Much like the chair 10 of the previous embodiment, the seat back 59 of the chair 50 is substantially vertical to the ground and meets with the seat 57 at substantially a right angle. The seat 57 and the frame 52 are positioned between the arms 58, and the arms 58 rise above the level of the seat 57.

As in the first embodiment of the invention, the detachable components of the chair 50 may be affixed to the frame 52 using conventional means, such as Velcro®, snap-fit connections or the like, or may simply rest firmly in place due to the natural conformance in shape between the detachable components of the chair 50 and the frame 52. Unlike the frame 12 of the chair 10 of Figure 1, however, the frame 52 of the chair 50 is made entirely of EPP and is therefore capable of being safely subjected to some of the more intensive cleaning methods described above. For instance, the frame 52 of the chair 50 may be placed wholly within an autoclave without risk of being damaged. As a result, all surfaces of the chair 50 may undergo the more intensive cleaning without risk of damaging the chair 50 or any of its detachable components.

During use, when an individual is seated in the chair 50, the surfaces in contact with the individual invariably become dirty over time and will require cleaning for sanitation and general hygiene purposes. Figure 6 shows an exploded view of the chair 50 shown in Figure 5 with the detachable components of the chair 50 detached from the frame 52. The detached components of the chair 50 are the components of the chair 50 that have been in contact with individuals using the chair 50 and therefore that require regular cleaning (i.e. in the case of present embodiment, the seat 57, the seat back 59 and the armrests 58). The detachable EPP components of the chair 50 may be cleaned using any of the methods described above with respect to the cleaning of the EPP
components 17a and 19a. As already mentioned, the frame 52 of the chair 50 may also be cleaned using these methods, the frame 52 being fashioned entirely of EPP.

The chair 50 may include a cushioning member and/or upholstery as discussed above in relation to the chair described in conjunction with Figures 1 to 4. A cushioning member and/or upholstery enhances the comfortableness and aesthetic appeal of the chair 50, and may be removed from the detachable EPP components for cleaning as described in the first embodiment of the invention. Advantageously, the non-EPP cushioning member and upholstery are cleaned using methods more appropriate or suited to the type of material from which they are made (for instance, some of the more intensive methods described above may be more suited to the EPP components and not the non-EPP components).

In summary, the present invention seeks to provide an item of furniture specifically using expanded polypropylene (EPP) of any density where the EPP is removable from its fixings and either steam cleaned and disinfected, wiped, dowsed, submerged or placed in an autoclave or dishwasher for the purpose of cleaning or disinfecting the components. Examples of the items of furniture which may be used include, but are not limited to, chairs, over-bed tables, toilet seats, commodes and any items requiring intense cleaning that are, or can be made, detachable. The invention allows for the removal, cleaning and replacement of furniture components by a worker (such as an unskilled employee or other individual working in a hospital-type environment, for example a nurse, janitor, cleaner or maintenance staff) following instructions. A component includes a metal or other frame with or without EPP bonded to it in which case it becomes a component which can also be placed in a dishwasher. In some, but not all cases, the invention is designed to work best with detachable upholstery bags.

For the first time, it is possible to properly clean an item of furniture (normally a chair) by fully dismantling it. It is preferred that any foam or filling is in an impervious (waterproof) bag, easily detached with the new system, cleaned thoroughly and re-fixed, and, when worn out, replaced without returning the whole item to the manufacturer or throwing the whole product away. It is
preferred that the main components of the product which are made from EPP can be removed and placed in a dishwasher or steam cleaned or drenched in disinfectant and will therefore not damage a frame (if this frame is perishable under such sever treatments) and then the components should be re-fixed or can be replaced easily when worn out.

Advantages provided by the present invention include:

1) The whole product can be thoroughly disinfected for the first time with the use of EPP components;

2) The foam in a bag can be disinfected and re-fixed or replaced;

3) The foam or fillings in a bag can enhance the fire-retardancy of the overlaying upholstery with the use of higher grade interlinear fabrics;

4) The product can be dismantled and each item individually replaced;

5) The use of EPP allows for easier and much more recycling than what was previously available for most furniture;

6) The life of the product is much extended because of its distinct feature of partial replacement of all parts; and

7) The technology transfers to other items such as commodes, toilet seats and over-bed tables, etc.

Furniture is provided with detachable expanded polypropylene components which can be sterilised by many methods including dishwashing producing a completely sterile component. The furniture may include detachable foam or fillings 'in a bag' with detachable upholstery detaching from the expanded polypropylene thus making it a suitable seating medium whilst enabling the seat, or back or arm pad to go into a dishwasher thus enabling the complete sterilisation of the component.

While various embodiments of the invention have been described above, it will be clear to one skilled in the art that the invention may be adapted and applied to many varied types of furniture and may encompass many varied cleaning methods. For example, it is to be noted that not all components of the chair 50 described in Figures 5 and 6 need comprise EPP, and indeed some of the chair's components may not comprise EPP. Non-EPP components may be
cleaned in accordance with the above-described methods for cleaning the EPP components. Alternatively, such components may be cleaned according to less intensive methods so as not to damage the components, or may simply be left attached to the chair 50 during the dismantling of the EPP components.

The frame 12 of the chair 10 may comprise EPP, polypropylene or metal components. If such is the case, following the removal of the upholstery 14 and the pillows 17b and 19b from the chair 10, the EPP components 17a and 19b may be detached and cleaned in accordance with the above-described methods, and the frame 12 may be placed into a large washer such is commonly found in hospitals or the like also for the purposes of cleaning. Alternatively, the EPP components 17a and 19a may be left attached to the EPP, polypropylene or metal frame for the purposes of cleaning in the large washer.

Furthermore, it is to be known that the invention may equally well be embodied in other types of units of furniture other than chairs, such as tables, over-bed tables, toilet seats, commodes, stools, etc., or any other type of furniture which may be cleaned in accordance with the present invention.

Accordingly, the present invention is limited only by the appended claims.
Claims

1. A method of cleaning an item of furniture having a detachable component comprising expanded polypropylene (EPP), wherein the method comprises the steps of:
   detaching the detachable component from the item of furniture;
   cleaning the detached component; and
   reattaching the detached component to the item of furniture.

2. The method of Claim 1, wherein the step of cleaning the detached component comprises sterilising and/or disinfecting and/or washing the detached component.

3. The method of Claim 1 or 2, wherein the step of cleaning the detached component comprises placing the detached component in one of a dishwasher, an autoclave, a steam cleaner, a washing machine, a microwave oven and an x-ray apparatus.

4. The method of any preceding claim, wherein the item of furniture further comprises a cushioning member detachably attached to the detachable component, and wherein the method further comprises the steps of:
   after detaching the detachable component from the item of furniture,
   detaching the cushioning member from the detached component; and
   after cleaning the detached component, reattaching the cushioning member to the detached component.

5. The method of Claim 4, further comprising the step of cleaning the detached cushioning member after detaching the cushioning member from the detached component.
6. The method of any preceding claim, wherein the item of furniture further comprises upholstery detachably attached to the detachable component, the method further comprising the steps of:
   after detaching the detachable component from the item of furniture,
   detaching the upholstery from the detached component; and
   after cleaning the detached component, reattaching the upholstery to the detached component.

7. The method of Claim 6, further comprising the step of cleaning the detached upholstery after detaching the upholstery from the detached component.

8. An item of furniture having a detachable component comprising expanded polypropylene (EPP), wherein the detachable component is capable of being cleaned.

9. The item of furniture of Claim 8, further comprising a cushioning member detachably attached to the detachable component.

10. The item of furniture of Claim 8 or 9, further comprising upholstery detachably attached to the detachable component.

11. The item of furniture of any of Claims 9 to 11, further comprising a frame, the detachable component being attachable to the frame.

12. The item of furniture of Claim 11, wherein the frame comprises polypropylene and/or expanded polypropylene (EPP) and/or wood and/or laminate wood and/or metal.

13. The item of furniture of any of Claims 9 to 12, wherein the item of furniture is a chair.
14. A combination of:

the item of furniture of any of Claims 9 to 13; and

a dishwasher, an autoclave, a steam cleaner, a washing machine, a microwave oven, or an x-ray-producing apparatus, for cleaning the detachable component.

15. A method of cleaning an item of furniture as herein described with reference to any of Figures 1 to 6.

16. An item of furniture as herein described with reference to any of Figures 1 to 6.
Application No: GB0918223.9  
Examiner: Mr Daniel Cox  
Claims searched: 1-16  
Date of search: 12 February 2010

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

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<tr>
<th>Category</th>
<th>Relevant to claims</th>
<th>Identity of document and passage or figure of particular relevance</th>
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| X        | 1-14               | GB2440274 A2  
GALBREATH, See pages 5 and 6 of the description detailing the use of expanded polypropylene and separable layers 30, 32 and 34. |
| X        | 1-14               | GB2434530 A  
BOES, See the discussion of the use of expanded polypropylene on page 5 of the description |
| X        | 1-14               | US2004/084937 A1  
BERTA, See paragraph 29 of the description discussing the use of expanded polypropylene |
See the discussion of the use of expanded polypropylene in a couch with detachable parts |
| X        | 1-14               | WO01/13766 A1  
WIELAND, See whole document |
| X        | 1-14               | US3774966 A  
FAULKNER, See whole document |
| X        | 1-14               | GB756675 A  
EDMUND, See whole document |
| X        | 1-14               | WO03/015576 A2  
NIEDERMAN, See whole document |

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

Worldwide search of patent documents classified in the following areas of the IPC

A47B; A47C

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

EPODOC and WPI

**International Classification:**

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