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CANOPY

The present invention is concerned with improvements in and relating to furniture and/or nursery equipment and/or canopies, particularly, though not exclusively, in relation to recreational furniture such as loungers or recliners. In another form this invention concerns improvements in and relating to fastener mountings, particularly for use in mounting canopies, sunshades and the like to furniture or to nursery equipment, such as prams, push chairs and the like. In yet another form this invention concerns improvements in relation to fastener mountings, particularly for use in mounting canopies, sunshades and the like to furniture.

The use of recreational furniture such as loungers, recliners and deck chairs has become increasingly prevalent over recent years. Such furniture is now commonly found in use in many gardens. Moreover, the collapsible nature of much of this furniture means that is often taken on family trips such as picnics, caravan holidays and trips to the beach. Holiday resorts and cruise liners also provide a large market for recreational furniture.

In order to enhance the utility of such furniture the present invention seeks to provide attachment of a variety of accessories to one or more parts of the furniture. The invention also seeks to provide a variety of useful and versatile accessories for such items of furniture. The invention also seeks to provide this attachment in a manner suitable for use on a wide variety of recreational furniture types irrespective of the framework they employ. The invention also seeks to provide accessories with an attachment suitable for attachment to a wide variety of recreational furniture types irrespective of their manufacturer. The invention also seeks to provide the attachment in a manner sufficiently easy to attach and detach as to be attractive to users who need to perform such operations regularly and in great numbers. The invention also seeks to provide canopies which are useful in a variety of other situations, including on nursery equipment.

When providing a mounting for a fastener to which a canopy can be attached problems are faced by existing mounting designs. Particular problems are faced in terms of an effective mounting for attachment to tubular frames. The problems are even more acute or unaddressed in the prior art where retrofitting to existing assembled frames is required.

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Examples of canopies intended for mounting on the ground include US4068673 and US5339867.

The present invention has amongst its aims to provide a secure mounting for one part of a fastener system. The present invention is aimed at both providing secure mountings on new items and on items to which retrofitting is required. The present invention has amongst its aims to provide a secure mounting which fits effectively to a range of different frame configurations. The present invention has amongst its aims to provide a mounting which is suited to retrofitting. The present invention has amongst its aims to provide a mounting which is easily attached to existing assembled frames.

When providing a mounting for a fastener to make sure a canopy can be attached problems are faced by existing by existing mounting designs. Such problems occur with frames of various materials and in the context of frames used for various purposes, but particular problems are faced in terms of providing an effective mounting on resin frames, such as those often used for furniture. These problems are particularly acute and are unaddressed by the prior art in the context of retrofitting such fastener mountings to existing assembled frames.

The present invention has amongst its aims to provide a secure mounting for one part of a fastener system. The present invention has amongst its aims to provide a secure mounting which fits effectively to a range of different frame configurations. The present invention has amongst its aims to provide a mounting which is suited to retrofitting. The present invention has amongst its aims to provide a mounting which is easily attached to existing plastic frames.

According to a first aspect of the invention we provide a canopy, the canopy including: a first part which includes a first arm, the first arm being provided with a first component of a fastener system at or towards one end, the first arm being provided with a joint at or towards the other end; a second part which includes a second arm, the joint connecting the second arm to the first arm, the joint allowing the orientation of the first arm to the second arm to be varied, the second arm being provided with a second joint, the second arm supporting a screen; a third part which includes a further arm, the second joint connecting the further arm to the second arm, the second joint allowing the orientation of the second arm to the further arm to be varied, the further arm supporting a screen; and

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characterised in that the second part and the third part are adjustable in angle relative to one another.

The second arm may be connected to the further arm indirectly and preferably through a third arm. Preferably pairs of first and/or second and/or third and/or further arms are provided.

The canopy may provide screening or protection against the sun. The canopy may provide at least 75% or even at least 90% effective shade against the sun. The canopy may

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be formed of a fabric which allows air movement through it, particularly to accommodate wind. The shade provided by one or more portions of the canopy may be increased by using the canopy with the second arm and the further arm folded together and/or by using the canopy with the second arm and third arm folded together and/or by using the canopy with the third arm and the further arm folded together.

The attachment is preferably by means of a two part fastener system. The two part fastener system preferably includes a second component provided on the item. Preferably the first component and second component releasably engage one another to provide the attachment. Preferably the first component and second component can be released and/or attached by either hand of a user.

The item of furniture may be a chair, a deckchair, a lounger, a recliner, a seat or a reclining seat. The item of furniture may seat one or more persons.

The first arm is preferably attached to the first component by means of a mounting. Preferably the mounting includes a part that receives the end of the first arm. Preferably a sliding fit is provided. One or more elements, such as cooperating lugs and recesses, may be provided to retain the mounting and first arm in position relative to one.

Preferably the first component is connected to the mounting by an element which can be rotated relative to the mounting. The rotatable element may be received within a channel. Preferably the rotatable element is mounted on a pin, ideally a pin spanning the channel. The mounting may join a first side part and a second side part. Preferably the first and second side parts define the channel. The element may be a disc element. The first and/or second side parts may have corresponding profiles to the element. Preferably a pin is provided mounted in an aperture in a first side part, passes through an aperture in the element and is mounted in an aperture in the second side part. The rotatable element may be free to rotate or may be releasably fixed in position. Preferably the part of the mounting which receives the arm is provided on one of the side parts. The part of the mounting which receives the arm may span between the two side parts.

Preferably the rotatable element is connected to the continuation part of the first component. The rotatable element may be connected direct to the body portion of the first component.

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The first component may be offset compared with the axis of the first arm. The first component may be closer to the front surface of the upright part of the item of furniture than the first arm in use.

The first component may be a male component. The second component may be a female component. Preferably a body portion of the first component is received within the second component during attachment. Preferably the leading edge of the body portion of the first component is inserted into the second component first during attachment.

Preferably the body portion of the first component is connected to a continuation portion. Preferably a part of the continuation portion extends out of the second component in the attached stated. Preferably one or more dependant arms extend from the leading edge of the body portion. Preferably the one or more dependant arms extend away from the leading edge towards the continuation portion. Preferably a gap is defined between each of the one or more arms and the body portion. Each arm is preferably provided with a lug or protrusion. Preferably the lug or protrusion cooperates with a part of the second component. Preferably deforming the arm into its gap causes the attachment to be released. The arms may be provided with a gripper portion towards its end. Preferably the continuation part of the first component is mounted on the support arm.

The length of the first arm may be adjustable. The length may be adjusted by telescoping one part of the first arm inside another part of the first arm. Preferably the length can be fixed using a releasable fixing. Preferably the first arm is linear. The length of the first arm may be variable. Preferably one or more repeat units can be used to vary the length of a first arm. Preferably a first joint is attached to one end and a part of the fastener is attached to the other end. Preferably the repeat unit is provided with a recess at one end. Preferably the repeat unit is provided with a protrusion at the other end. Preferably the protrusion is configured to match the recess. The protrusion may be in the form of a pin.

The first arm may be a rectangular cross-section.

Preferably two first arms are provided. Preferably the two first arms are of equivalent configuration. A screen may be provided between the two first arms. One or more strips of material may be provided between the two first arms. The gap between the two first arms may be left open.

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The first joint may be provided at the end of the first arm. The first joint may be an integral part of the first arm or may be a separate component. The first arm may be connected to the joint by a pin which passes through the arm and is connected to the joint. The same pin may connected the second arm to the first joint or a different pin may be used. Preferably the pin connects the first joint on a first first arm with the first joint on a second first arm. The pin may provide support and/or a mount for a screen and/or material provided between the first arms and/or provided between the second arms.

The first arm or arms and/or joints therefor and/or first component or components of the fastener system are preferably separate components from one another.

The first arm may be received in a groove in a block which is a part of the joint. Preferably the first arm is clamped in the groove by a knob. The second arm may be received in a groove in a block which is a part of the first joint. Preferably the second arm is clamped in the groove by a further knob on the other side of the joint to the first. Preferably the blocks are different blocks. The block for the first arm may cooperate with the knob for the joint. Preferably rotation of the knob in one direction allows the orientation of the first arm and second arm to be varied. Preferably rotation of the knob in the other direction causes the orientation of the first and second arms to be fixed. Preferably the rotation releases or fixes a fixing in the joint. The ratchet may take the form of a series of radially extending ridges provided on a surface, such a surface being provided for each part of the joint, the surfaces carry the ridges engaging with one another. One part of the joint may be provided with a raised portion, such as a boss, which surround the axis of rotation. The other part of the joint may be provided with a recessed portion around the axis of rotation. Preferably the two cooperate with one another to assist in the positioning of the two parts of the joint relative to one another. One or more of the joints, particularly the first joint, may be provided with free rotation between the limit in one direction and the limit in the other direction. A resistance may be provided to the initial movement away from one or both of the limits of rotation. The limit of rotation, particularly for the first joint may be provided by a protrusion and stop which avut one another at the limit. The stop may be provided with or consist of a metal component. A pin may be provided in a plastic web in one preferred form. The protrusion preferably moves within a channel defined by the other part of the joint to that which carries the

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projection. A further projection may be provided which also cooperates with a stop at the limit of rotation. The further projection may be provided on the outside of the joint. Preferably the projection rotates within an external channel in the other part of the joint. The channel may be open sided. The projection and further projection may be radially and circumferentially spaced apart. The spacing may be between 90 and 270 degrees, more preferably between 160 and 200 degrees. The internal channel may be strengthened by one or more cross pieces.

Preferably a fixing is provided in each of the first joints. Preferably the one knob releases or fixes the fixing in both first joints.

The fixing is preferably provided by two surfaces capable of releasable engagement. The engagement surfaces may be spring loaded to urge them apart. Preferably both surfaces are provided with splines. The surfaces may alternatively be provided with teeth and recesses, pins and apertures or other cooperating systems. Preferably one of the surfaces is provided on an element which is mounted on the first block. Preferably the other of the surfaces is mounted on the second block.

Preferably the two first joints are the same, except only one is provided with the knob for releasing/fixing the joints and hence the first and second arm positions.

The second joint may be provided with an equivalent structure to the first joint. Alternatively the second joint may be provided with the following structure, with the first joint potentially having that structure too. The second joint on one side may be linked to the second joint on the other side by an element. The element may be a rod. The element may be provided within a part of the frame, for instance a cross-arm. The joint may include a first block and a second block. Preferably the first and second blocks engage one another through engagement surfaces. The engagement surfaces may be provided with splines and/or teeth and recesses and/or pins and apertures and/or other cooperating systems. The cross-arm may engage with one of the blocks, ideally through a recess in the block which is of matching profile to the cross-sectional profile of the cross-arm. The first block may be provided with a recess which receives an arm, preferably a second arm. The second block may be provided with a recess which receives an arm, preferably a further arm. Preferably a knob is provided in engagement with the element at one end of the element. Preferably the other end of the element, at the other joint, is provided with a cap. Preferably rotation of the knob in one direction releases the engagement surfaces to allow

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rotation. Preferably rotation of the knob in the other direction tightens the engagement between the engagement surfaces. Preferably one direction of rotation increase the separation of the knob and cap. Preferably rotation in the other direction decreases the separation of the knob and cap. Preferably a spring is provided to urge the engagement surfaces into contact with one another. The spring may be provide around the element. The spring may engage the knob and/or a portion of the element such as a nut provided thereon.

The second arm or arms and/or second joints and/or further arm or arms are preferably separate components from one another.

The second component is preferably recessed into the item of furniture. The second component may be recessed into the frame of the item of furniture and preferably into the top of the frame. The second component may be recessed into a member which is then attached to the frame of the item of furniture. The member may be of wood. A cover may be provided to surround the second component and/or cover the top of the recess into which the second component is inserted and/or cover the junction between the frame material and the second component.

Preferably a second component is provided for each first component. The second component may be provided with an aperture or recess which cooperates with a part of the first component, ideally with a lug or protrusion provided on one or more of the arms of the first component. The second component may be provided with one or more grooves, ridges or surfaces to guide the first component during insertion into the second component and/or control the position of the first component in the second component after attachment.

The axis of insertion and/or removal of the first component relative to the second component may be inclined relative to the axis of the first arm. The axis of insertion and/or removal for a first first component may be inclined relative to the axis of insertion and/or removal for a second first component. Preferably each axis is inclined to the same extent, but in opposite directions. Preferably the continuation of each axis in the direction of insertion extend towards one another.

The length of the second arm may be adjustable. The length may be adjusted by telescoping one part of the second arm inside another part of the second arm. The length

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can be fixed using a releasable fixing. Preferably the second arm is of fixed length. Preferably the second arm is linear. The second arm may be a rectangular cross-section.

Preferably two second arms are provided. Preferably the two second arms are of equivalent configuration. A screen may be provided between the two second arms. One or more strips of material may be provided between the two second arms.

The second joint may be provided with an equivalent structure to that set out above for the first joint, but in this case connecting the second arm and further arm.

Preferably the two second joints are the same, except only one is provided with the knob for releasing/fixing the joints and hence the second and further arm positions.

Preferably the second joint is provided at the end of the second arm. Preferably the second joint allows the position of the second and further arm to be adjusted relative to one another.

The further arm may be a single arm, particularly when the further arm is the end arm. The single arm may curve round from one second joint to the other, for instance in a semi circle. The further arm may be provided together with a second further arm. The further arms may be linked by a link arm. The further arms and link arm may be connected by corner pieces. The corner pieces may be of plastic. A screen may be provided between the further arms and/or further arms and link arm.

Preferably a single screen is provided between the further arms and between the second arms. A plurality of strips may be provided between the further arms and/or between the second arms and/or between the first arms. The strips may be provided overlapping or abutting one another or with a small gap there between.

One or more of the screens may be of PVC coated polyester. Yarns may be used to form the screen or screens. The screens may be formed of weldable material. One or more holes or gaps may be provided in the screen or screens.

The canopy may be in three sections. The first section is preferably defined by a pair of first arms and a link between the first joints. The second section is preferably defined by a pair of second arms, the link between the first joints and a link between the second joints. The third section is preferably defined by the further arm or arms, and potentially link arm, and the link between the second joints.

Alternatively the canopy may be in four or more sections. The first section is preferably defined by a pair of first arms and a link between the first joints. The second

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section is preferably defined by a pair of second arms, the link between the first joints and the link between the second joints. The third section is preferably defined by a pair of further arms, the link between the second joints and the link between the further joints. Further sections may be provided in an equivalent manner to the third section. The fourth and/or final section is preferably defined by the still further arm or arms and potentially a still further link arm, and the link between the further joints.

Preferably the separation between the first arms is less than the separation between the second arms. In this way the first arms may be accommodated between the second arms in the folded state. Preferably the first arms are shorter than the second arms. Preferably the separation between the further arms is less than the separation between the third arms. In this way the further arms may be accommodated between the third arms in the folded state. Preferably the further arms are shorter than the third arms. Preferably the second and third arms fold against one another. Preferably the third arms are shorter than the second arms, preferably such that the joints between the third arms and the further arms are inside the end of the second arms in the folded state.

Preferably the first section of the canopy is generally vertically provided in use. Preferably the second section is generally angled up, in the direction of the link between the second joints, in use. Preferably the third section is generally angled down towards its end in use.

The canopy is preferably foldable. The first section may be folded against the second section. Preferably the second section is folded towards the third section, with the first section between the second section and third section. Preferably the canopy folds flat, for instance so that its maximum thickness, measured perpendicular to its maximum length, is less than 5% of the maximum length.

Preferably the separation between the two arms of the first section is less than the separation between the two arms of the second section. Preferably this configuration is provided such that the first section may be folded in between the arms of the second section. A particularly low profile folding structure may be provided as a result. Preferably the separation between the two arms of the third section and the separation between the two arms of the second section are equivalent to one another. Preferably the configuration is provided such that the arms of the second section and the arms of the third section fold against one another.

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Preferably the canopy material of the first section and/or second section and/or third section and/or further sections is connected to at least an adjacent section by a part of the canopy material. Preferably the part of the canopy material which provides the connection extends between the one section and the other section around the inside of the joint and/or around the side of the joint post when the sections come together in the folded configuration.

Preferably the rotation of the first arm relative to the second arm is restricted in its extent. Preferably the rotation of the second arm relative to the third arm and/or further arm is restricted in its extent. Preferably the rotation of the third arm relative to the further arm is restricted in its extent. The rotation may be restricted by a stop which abuts the arm or a part of the joint which rotates therewith, when the limit of rotation is reached. At or close to the limit of rotation a resistance may be provided to rotation back in the other direction. A click style locking into position may be provided. Resistance to rotation may be provided at one or more intermediate extents of rotation. Such resistance may be provided by a ratchet mechanism. Preferably the restriction is provided in the joint between the respective arms. Preferably the second arm is allowed to rotate from a fully folded position, for instance a storage position in which the first arm and second arm are adjacent to one another, through a range of angles to a fully unfolded position. Preferably the range of angles is less than 340° , and ideally 270° or less. Preferably the third and/or further arm is allowed to rotate from a fully folded position, for instance a storage position in which the third and/or further arm and first arm are adjacent one another, through a range of angles to a fully unfolded position. Preferably the range of angles is less than 340° , and ideally 270° or less. Preferably the restriction to the second arm rotation and/or third arm and/or further arm rotation restricts their downwards movement towards the seat in use.

The two first arms may be parallel to one another. The second arms may be parallel to one another. The third arms may be parallel to one another. The further arms may be parallel to one another. The first, second, third and further arms may be parallel to one another, at least when viewed in one plane.

The second component may be attached to the item of furniture by a releasable clamp, particularly in the case of tubular furniture. The clamp preferably engages with a part of the frame of the item of furniture. The part may be a top part of the frame, for

instance a generally horizontal part of the frame. The part may be a side part of the frame, for instance a generally vertical part of the frame. Preferably the second component is attached to the clamp by a rotatable mounting. The rotatable mounting may be formed by a pin which passes through an aperture in the second component and which the clamp. The pin preferably engages both jaws of the clamp. The pin may be rotatable in one direction to open the clamp by movement of the jaws. The pin may be rotatable in the other direction to close the clamp and preferably also to fix the orientation of the second component relative to the clamp. A splined engagement between the second component and the clamp and/or between the second component and a head piece for the pin may be provided to fix the orientation of the second component relative to the clamp.

The clamp may include two opposing jaws. Preferably the pin adjusts the separation of the jaws. The jaws may each be provided with a recess to accommodate the frame to be clamped. The hinge between the jaws may be a flexible hinge.

The second component may be attached to the item of furniture by a mounting. The mounting may be slid onto a part of the frame of the item of furniture, particularly in the case of tubular furniture. The mounting may be provided with an aperture, preferably a through aperture, which receives a part of the frame of the item of furniture. The aperture is preferably of a cross-section which matches the cross-section of the part of the frame of the item of furniture which it receives. One or more engagements may be provided between the mounting and the frame. The frame may be provided with one or more apertures, grooves or recesses which receive a part provided on the mounting, for instance a pin.

Preferably the canopy is stackable with canopies of the same type.

Preferably the first arm or arms is short than the second and/or third and/or further arm or arms. Preferably the further arm or arms are shorter than the second and/or third arm or arms. Preferably the third arm or arms are shorter than the second arm or arms. Preferably the link between the first arms or first joints and/or the link between the second arms or second joints and/or the link between the third arms or third joints are of the same length and/or design and/or dimensions. Preferably the second and third joint, at least, are of the same design.

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The first aspect of the invention may include any of the features, options or possibilities set out elsewhere in this document.

The invention may usefully be used with a method of attaching a canopy to an item, the method including: providing the item with one or more second components of a fastener system; providing a canopy, the canopy including: a first part which includes a first arm, the first arm being provided with a first component of a fastener system at or towards one end, the first arm being provided with a joint at or towards the other end; a second part which includes a second arm, the joint connecting the second arm to the first arm, the joint allowing the orientation of the first arm to the second arm to be varied, the second arm being provided with a second joint, the second arm supporting a screen; a third part which includes a further arm, the second joint connecting the further arm to the second arm, the second joint allowing the orientation of the second arm to the further arm to be varied, the further arm supporting a screen; and wherein the second part and the third part are adjustable in angle relative to one another; the method further including connecting the first component of the fastener system to the second component.

The method of attaching may include the insertion of a part of one component, preferably the first component, into the other component, preferably the second component. The insertion of the component into the other may cause a part, particularly one or more dependant arms, to deform from a first position to a second position. Preferably continued insertion causes the part to move back towards the first position, particularly when one or more lugs or protrusions on one of the components enter one or more apertures or recesses on the other component.

Preferably the canopy is attached to the item by moving the canopy towards the item from a position above the item. Preferably a downward, generally vertical movement is used to achieve the attachment.

The invention may usefully be used with a table for attachment to an item of furniture, the table including a support surface, one or more support arms, the support arms depending from the support surface, each support arm being provided, at or

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towards the end away from the support surface, with a first component of a fastener system.

The table may be for supporting a drink and/or food and/or containers therefore.

The attachment is preferably by means of a two part fastener system. The two part fastener system preferably provides a second component on the item. Preferably the first component and second component releasably engage one another to provide the attachment. Preferably the attachment can be achieved by presenting the first component to the second in a first orientation and can be achieved by presenting the first component to the second in a second orientation. The second orientation may be a 180° rotation relative to the first orientation. Preferably the first component and second component can be released and/or attached by either hand of a user.

The attachment may be made to one arm of the item of furniture or may be made to the other arm of the furniture or may be made to both arms simultaneously. The attachment may position the table over the seat portion of the item. The attachment may position the table to the side of the item. The attachment position may be changed from time to time.

The item of furniture may be a chair, a deckchair, a lounge, a recliner, a seat or a reclining seat. The item of furniture may seat one or more persons.

The support surface may be planar. The support surface may be surrounded, totally or in part, by a raised edge or rim. The support surface may be rectangular. The support surface may be of the same material as the table or may include a surface of a different material, for instance a non-slip material.

The table may be provided with support arms. Preferably the one or more support arms are linear. Preferably the one or more support arms are of the same length. The length of the support arms may be adjustable. Preferably the one or more support arms depend from the underside of the support surface. Preferably the one or more support arms extend generally perpendicularly away from the support surface. The one or more support arms may be provided towards one edge of the table or support surface in preference to one or more of the other edges. The one or more support arms may be provided towards one edge, the arms being at a location 10% or less of the distance between the edge and its opposing edge.

The first component may be a male component. The second component may be a female component. Preferably a body portion of the first component is received within the second component during attachment. Preferably the leading edge of the body portion of the first component is inserted into the second component first during attachment.

Preferably the body portion of the first component is connected to a continuation portion. Preferably a part of the continuation portion extends out of the second component in the attached stated. Preferably one or more dependant arms extend from the leading edge of the body portion. Preferably the one or more dependant arms extend away from the leading edge towards the continuation portion. Preferably a gap is defined between each of the one or more arms and the body portion. Each arm is preferably provided with a lug or protrusion. Preferably the lug or protrusion cooperates with a part of the second component. Preferably deforming the arm into its gap causes the attachment to be released. The arms may be provided with a gripper portion towards its end. Preferably the continuation part of the first component is mounted on the support arm.

The second component is preferably recessed into the item of furniture. The second component may be recessed into the arm of the item of furniture and preferably into the top surface of the arm. Preferably a second component is provided for each first component. The second component may be provided with an aperture or recess which cooperates with a part of the first component, ideally with a lug or protrusion provided on one or more of the arms of the first component. The second component may be provided with one or more grooves, ridges or surfaces to guide the first component during insertion into the second component and/or control the position of the first component in the second component after attachment.

Preferably the table is stackable with other tables of the same type. One or more, and preferably all of the support arms may be foldable. Preferably a support arm folds up under the support surface, ideally into a substantially flat configuration. Preferably the extent of the support arms is within the profile of the support surface in this folded position.

The invention may usefully be used with a method of attaching a table to an item of furniture, the method including providing an item of furniture with one or more second components of a fastener system, providing a table, the table including a support surface and one or more support arms, the support arms depending from the support surface, each support arm being provided, at or towards the end away from the support surface, with a first component of the fastener system, connecting the first component of the fastener system to the second component.

The method of attaching may include the insertion of a part of one component, preferably the first component, into the other component, preferably the second component. The insertion of the component into the other may cause a part, particularly one or more dependant arms, to deform from a first position to a second position. Preferably continued insertion causes the part to move back towards the first position, particularly when one or more lugs or protrusions on one of the components enter one or more apertures or recesses on the other component.

Preferably the table is attached to the item by moving the table towards the item from a position above the item. Preferably a downward, generally vertical movement is used to achieve the attachment.

The method may provide for the attachment of the table to the item in more than one orientation. The table may be attached to the item in a first orientation in which the table protrudes across the seat portion of the item. The table may be attached to the item in a second orientation in which the table protrudes to the side of the item. The first and second orientations may be achieved by attaching the table to the item in orientations which are at 180° to one another.

The invention may usefully be used with a method of serving a drink product or food product, the method including placing the drink product or food product on a table, the table being at a first location, moving the table to a second location which is different from the first and attaching the table to an item of furniture present at the second

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location, the table including a support surface and one or more support arms, the support arms depending from the support surface, each support arm being provided, at or towards the end away from the support surface, with a first component of a fastener system, the first component being connected to a second component of the fastener system at the second location to attach the table to the item of furniture.

The first location may be a bar, kitchen or centralised location for the supply of food and/or drink. The first location may be accessible to service staff, but potentially not users of the item of furniture. Preferably the table is brought from the first to the second location in response to an order or request for the food and/or drink on the table. Preferably the table is carried by a waiter or other member of service staff. Preferably the table is attached to the item of furniture by the waiter or other member of service staff. Preferably the table is attached to the item of furniture in an orientation of the item of furniture users choice. The table may be detached from the item of furniture when the drink and/or food is finished with. The table may be detached by the waiter or other member of service staff to return the finished drink and/or food to the first location.

The invention may usefully be used with an item of furniture for use as a seat, the item of furniture including a second component of a fastener system, wherein the second component of the fastener system is provided on an arm of the seat, or is provided on the frame of the seat to the side of the seat or is provided on the frame of the seat at the back of the seat, the second component being a female component.

The second component preferably attaches to a first component of the fastener system and in particular to a first fastener of the type provided elsewhere in this document. The second component is preferably recessed into the seat. The second component may be recessed into the arm of the seat, or into the frame of the seat to the side of the seat or into the frame at the back of the seat, preferably at the top thereof. A plurality of second

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components may be provided. Preferably second components are provided in the top of the back of the seat and either in the arm of the seat or in the frame to the side of the seat. Preferably two second components are provided at each location.

The second component may be provided with an aperture or recess which cooperates with a part of the first component, ideally with a lug or protrusion provided on one or more of the arms of the first component. The second component may be provided with one or more grooves, ridges or surfaces to guide the first component during insertion into the second component and/or control the position of the first component in the second component after attachment.

In an alternative form the second component may be attached to the seat by a releasable clamp, particularly in the case of tubular furniture. The clamp preferably engages with a part of the frame of the seat. The part may be a top part of the frame, for instance a generally horizontal part of the frame, for instance behind the seat. The part may be a side part of the frame, for instance a generally vertical part of the frame, for instance on the back of the seat. The part may be a side part of the frame to the side of the seat. Preferably the second component is attached to the clamp by a rotatable mounting. The rotatable mounting may be formed by a pin which passes through an aperture in the second component and which the clamp. The pin preferably engages both jaws of the clamp. The pin may be rotatable in one direction to open the clamp by movement of the jaws. The pin may be rotatable in the other direction to close the clamp and preferably also to fix the orientation of the second component relative to the clamp. A splined engagement between the second component and the clamp and/or between the second component and a head piece for the pin may be provided to fix the orientation of the second component relative to the clamp.

The clamp may include two opposing jaws. Preferably the pin adjusts the separation of the jaws. The jaws may each be provided with a recess to accommodate the frame to be clamped. The hinge between the jaws may be a flexible hinge.

The second component is preferably used to attach one or more accessories to the seat, the accessories being provided with one or more first components of the fastener system. The accessories may be one or more of a canopy, a table, a parasol, a windbreak, a light, a reading stand or insect screen.

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One or more of the accessories may be provided with the seat as a kit. The kit may include one or more of the clamps described in this document.

Preferably the item of furniture is stackable with items of furniture of the same type. Preferably the accessories are stackable with accessories of the same type.

The invention may usefully be used with a method of manufacture, preferably for a canopy for attachment to an item of furniture, the method including:

providing a canopy, the canopy including a plurality of sleeves for receiving arms, the sleeves being formed by one or more portions of the canopy being folded over and joined to another part of the canopy;

inserting a first arm into a sleeve, the first arm being provided with a first component of a fastener system and being provided with a joint;

inserting a second arm into a sleeve and connecting the second arm to the joint, the second arm being provided with a second joint, the joint allowing the orientation of the first arm to the second arm to be varied;

inserting a further arm into a sleeve and connecting the further arm to the joint on the second arm.

A third arm may be provided between the second and further arm, preferably in conjunction with a third joint.

Preferably the arms are slid into their respective joints. Preferably the arms and joints are separate components from one another.

Preferably the method provides for the manufacture of different size and shape canopies using the same joints, but different length first arms and/or second arms and/or further arms and/or cross-arms. Preferably the first arm or arms is short than the second and/or third and/or further arm or arms. Preferably the further arm or arms are shorter than the second and/or third arm or arms. Preferably the third arm or arms are shorter than the second arm or arms. Preferably the link between the first arms or first joints and/or the

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link between the second arms or second joints and/or the link between the third arms or third joints are of the same length and/or design and/or dimensions.

Preferably the joint is separate from the first arm and ideally is mounted on the end of each of the first arm by means of a sliding engagement. Preferably two first arms are provided, preferably in their own sleeves. Preferably these arms or joints are linked by a cross-arm. Preferably the fastener for that cross-arm is then attached and tightened.

Preferably the joint on the second arm is separate from the second arm and ideally is mounted on the end of the second arm by means of a sliding engagement. preferably two second arms are provided, preferably in their own sleeves. Preferably these arms or joints are linked by a cross-arm. Preferably the fastener for that cross-arm is then attached and tightened.

The one or more sleeves may be formed by welding a part of the one or more portions to the another part of the canopy.

The invention may usefully be used with a mounting, the mounting including one part of a fastener system, the mounting being formed of a first part and a second part, the first and second parts releasably engaging with one another, the first and second parts defining a channel between the first and second parts, the channel receiving a frame in use, the first part including a first frame engaging portion which faces the channel at a position and a second frame engaging portion which faces the channel at a position, the second part including a first frame engaging portion which faces the channel at a position and a second frame engaging portion which faces the channel at a position, the axis of the channel at the position for a first frame engaging portion being different to the axis of the channel at the position for a second frame engaging portion.

The mounting may be formed of metallic or non-metallic materials, such as plastics. The mounting may be formed of moulded components.

The one part of the fastener system may be a female part. The female part preferably cooperates with a male part provided on the item to be attached to the

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mounting. Preferably the item is a canopy, sunshade, sun screen, umbrella, parasol, rainshield or the like. The item may be a table.

The one part of the fastener system is preferably provided in a recess in the mounting. The recess may be defined, at least in part, by a recess portion of the first part of the mounting.

In one embodiment of the invention the recess may be defined, at least in part, by a recess portion of the second part of the mounting. Preferably the recess is defined by two halves, one half being provided by the recess portion of the first part of the mounting, the second half being provided by the recess portion of the second part of the mounting. The mouth of the recess may be surrounded by a cap. Preferably the cap engages with the first part of the mounting. Preferably the cap engages with the second part of the mounting. Preferably the cap resists movement of the first part and second part away from one another in use. The one part of the fastener is preferably provided in a first body part of the mounting. Preferably the first body part is formed by the first and second parts of the mounting. Preferably the first body part is provided to one side of the channel. The first body part may include a planar surface on each face, with curved transition surfaces linking the two faces.

In an alternative embodiment of the invention the recess may be solely defined by a first part of the mounting. This may particularly be the case for mountings intended for use on nursery equipment. Preferably the recess is defined by a cup component. Preferably the cup component is mounted on the first part of the mounting, particularly a planar face thereof. The mouth of the recess is preferably flush with the planar face. The mouth of the recess may be surrounded by a cap. Preferably the recess is provided to one side of the channel. The axis of insertion and/or removal of the second part of the fastener relative to the first part of the fastener is preferably angled relative to the axis of the channel at the position for a first frame engaging portion and angled relative to the axis of the channel at the position for a second frame engaging portion.

Preferably the first body part includes one or more locations for releasable fasteners. The fasteners may be screws, clips or the like. Preferably at least two such locations are provided on the first body part, with ideally at least four such locations being provided on the mounting in total. Four releasable fasteners, preferably in the form of screws, may particularly be provided in the case of mountings for nursery equipment. The

releasable fasteners may be introduced through an aperture, preferably a recessed aperture, in the first body part of the mounting and/or one face of the first body part. Preferably the releasable fasteners engage with locations on the second body part of the mounting and/or the inside of the face of the second body part.

The mounting may be provided with a second body portion, preferably to the other side of the channel to the first body portion. Preferably the second body part is formed by the first and second parts of the mounting. The second body part may include a planar surface on each face, with curved transition surfaces linking the two faces. The second body part may be in the form of a curved surface, particularly to the outside of the channel. Preferably the second body part includes one or more locations for releasable fasteners. The fasteners may be screws, clips or the like. Preferably at least two such locations are provided. The releasable fasteners may be introduced through an aperture, preferably a recessed aperture, in the second body part of the mounting and/or one face of the second body part. Preferably the releasable fasteners engage with locations on the first body part and/or inside of the face of the first body part.

The first part of the mounting may be one half of the mounting. Preferably the first part of the mounting includes at least some of the first body part, channel or body section defining the channel and the second body part.

The second part of the mounting may be one half of the mounting. Preferably the first part of the mounting includes at least some of the first body part, channel or body section defining the channel and the second body part.

The second part of the mounting may be a mirror image of the first part. Preferably curved transition surfaces form a smooth junction between the first part and second part.

The channel may be a continuous channel. The channel may only have an opening at each end for the frame. The channel may have one or more openings in its side. The channel may be formed only by the first frame engaging portions and second frame engaging portions. Preferably the channel is defined by a body section. Preferably the body section links the first body part to the second body part. Transition surfaces may link the body section to the first and/or second body part. The body section may have a consistent internal profile and/or cross-section throughout, for instance where the channel is continuous. The body section may have a varying internal profile or cross-section, for instance where the channel is discontinuous or includes a chamber.

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Particularly between the positions of the first frame engaging portions and the second frame engaging portions the channel and/or body section may define an opening, particularly in the form of a chamber. The opening may be used to accommodate a variety of differently shaped or curve forms or curve diameters for the elements of the frame linking the linear first element and linear second element. The opening may be enclosed by the body section and/or body parts so that the only openings are those at the ends of the channel.

The frame may particularly be a tubular frame, normally, but not necessarily of circular cross-section. The frame may be of metal. The mounting may be attached to a corner of the frame, particularly at or near the top of the frame. The mounting may be attached to the frame at a location formed by a first element, preferably linear, which is linked to a second element, preferably linear, by a curved element. The mounting is preferably attached to the frame without modifying the frame and/or dismantling the frame in anyway.

The first engaging portion of the first part may be separate from or linked to the second engaging portion of the first part. The first engaging part of the first part is preferably provided with a profile to match the element of the frame it is to engage. The profile may be a half of a cylinder or less. The profile may be semi-circular or less and may curve along its length. The first engaging portion of the first part may be provided towards or at one end of the channel.

The first engaging portion of the second part may be separate from or linked to the second engaging portion of the second part. The first engaging part of the second part is preferably provided with a profile to match the element of the frame it is to engage. The profile may be a half of a cylinder or less. The profile may be semi-circular or less and may curve along its length. The first engaging portion of the second part may be provided towards or at one end of the channel.

The second engaging part of the first part is preferably provided with a profile to match the element of the frame it is to engage. The profile may be a half of a cylinder or less. The profile may be semi-circular or less and may curve along its length. The second engaging portion of the first part may be provided towards or at one end of the channel, preferably the other end to the first engaging portion.

The second engaging part of the second part is preferably provided with a profile to match the element of the frame it is to engage. The profile may be a half of a cylinder or less. The profile may be semi-circular or less and may curve along its length. The second engaging portion of the second part may be provided towards or at one end of the channel. Preferably the other end to the first engaging portion.

One or more of the first and second frame engaging portions may be provided by the same portion, for instance a continuous surface which defines the channel.

The first and/or second engaging portions may be integral to the mounting and/or the first part and/or the second part. The first and/or second engaging portions may be provided by components which are separate from the mounting and/or the first part and/or the second part. In particular one or more elements of the compliant material, such as a rubber pad, may be used to form at least part of the first and/or second engaging portions. The compliant material may be provided between the first part and the frame in use and/or between the second part and the frame in use. The compliant material may be provided throughout the channel. The compliant material may be provided at or adjacent one or both of the ends of the channel. Preferably the ends of the channel provide a seal between the frame and the mounting in use. The seal may be assisted by or provided by the compliant material. One or more different compliant materials and/or different sizes of compliant material and/or thicknesses of compliant material may be provided together with the mounting. In this way different sizes of frame may be accurately and effectively gripped.

The axis of the channel at the position for a first frame engaging portion and/or the axis of the channel at the position for a second frame engaging portion may be considered relative to a projection of the axis at that point, particularly as the axis of the channel will assume a curved path through one or more parts of the channel.

Preferably the axis of the channel at the position of both first frame engaging portions is the same. Preferably the axis of the channel at the position of both second frame engaging portions is the same. Preferably the axis at one or both of the first frame engaging portions is at least 30° different from the axis at one or both of the second frame engaging portions. More preferably the difference is at least 45°, still more preferably at least 60°, yet more preferably at least 75° and ideally between 85° and 95°. The axis for the first frame engaging portion may be considered at the first frame engaging portion position

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furthest from the second frame engaging portion. The axis for the second frame engaging portion may be considered at the second frame engaging portion position furthest from the first frame engaging portion.

Preferably one or both of the first frame engaging portions engage a first linear element of the frame, in use. Preferably one or both of the second frame engaging portions engage a second linear element of the frame, in use. Preferably the first element and second element each have an axis. Preferably the axes are inclined relative to one another by at least 30° different, more preferably the difference is at least 45°, still more preferably at least 60°, yet more preferably at least 75° and ideally between 85° and 95°.

The invention may usefully be used with a mounting, the mounting including one part of a fastener system, the mounting being formed of a first part and a second part, the first and second parts realisably engaging with one another around a frame, the frame being received in a channel defined by the first and second parts of the mounting, each of the first part and the second part providing within the channel and towards or at one end of the channel a first frame engaging portion and providing at or towards the other end of the channel a second frame engaging portion, the first frame engaging portions opposing one another, the second frame engaging portions opposing one another, the axis of the channel at one end being at an angle of at least 75 ° compared with the axis at the other end of the channel.

The invention may usefully be used with a mounting, the mounting including a female part of a fastener system in a recess, the mounting between formed of a first part which includes a first body part, a channel defining section and a second body part and a second part which includes a first body portion, a channel defining section and a second body portion, the first and second parts being substantially mirror images of one another, the channel defined by the first and second parts enclosing a part of the frame of

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an item in use, the channel receiving at least part of a first linear element of the frame, a curved element of the frame and at least a part of a second linear element of the frame.

The invention may usefully be used with a method of attaching a mounting including one part of a fastener system to a frame, the method including:

positioning a first part of the mounting to one side of the frame, the frame being received within a channel defined in part by the first part of the mounting;

positioning a second part of the mounting to the other side of the frame, the frame also being received within a channel defined in part by the second part of the mounting;

fastening the first and second parts of the mounting together using one or more fasteners with the frame between them in the channel and so that first frame engaging portions of the first part and second part and second frame engaging portions of the first and second part engaging the frame;

wherein the axis of the frame at or towards one end of the channel is at a different angle to the axis of the frame at or towards the other end of the channel.

The method may further include attaching a canopy, sun screen or sunshade provided with another part of the fastener system to the mounting using the part of the fastener system included in the mounting.

The method may further include mounting one or more further mountings on the frame at one or more other locations. The other locations may be corners of the frame, particularly top corners of the frame.

The frame may particularly be the frame of a chair, sun lounger or other item of furniture. The frame may particularly be a tubular cross-section frame, for instance of metal.

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The invention may usefully be used with a mounting, the mounting including one part of a fastener system, the mounting including:-

a first element, a second element and a further element;

the first element including a first item contacting surface and a first item engaging surface, at least a portion of the first item engaging surface facing in an opposing direction to the first item contacting surface;

the second element including a second item contacting surface and a second item engaging surface, at least a portion of the second item engaging surface being in opposition to the second item contacting surface;

the further element including a further item contacting surface;

wherein the first, second and further item contacting surfaces are each angled relative to one another.

Preferably the first item engaging surface is provided on a first item engaging part. Preferably the second item engaging surface is provided on a second item engaging part. Preferably at least a part of the first and/or second engaging parts face the further item contacting surface.

The invention may usefully be used with a mounting, the mounting including one part of a fastener system, the mounting including:-

a first element, a second element and a further element, the further element including a further item contacting surface;

the first element including a first item contacting surface and a first item engaging part, at least a part of the first item engaging part facing the further item contacting surface;

the second element including a second item contacting surface and a second item engaging part, at least a part of the second item engaging part facing the further item contacting surface;

wherein the first, second and further item contacting surfaces are each angled relative to one another.

A first item engaging surface may be provided on the first item engaging part. A second item engaging surface may be provided on the second item engaging part.

Preferably the mounting is formed of plastics. The mounting may be moulded. Preferably the mounting is provided as a single integral unit. Preferably the mounting is formed in a single mould.

The mounting may be for an item such as a chair, reclining chair, lounge, reclining lounge or other item of furniture. The mounting may particularly be for the back of an item, and especially the corner thereof.

The one part of the fastener may be a female part. The female part preferably cooperates with a male part provided on the item to be attached to the mounting. Preferably the item is a canopy, sunshade, sun screen, umbrella, parasol, rainshield or the like. The item may be a table.

The one part of the fastener system is preferably provided in a recess in the mounting. The recess may be defined by one or more wall parts. The one part of the fastener system may be provided, at least in part, on the first element. The one part of the fastener system may be provided on the other side of the first element to the first item contacting surface. The one part of the fastener system may be provided, at least in part, on a third element which links the first element and second element.

Preferably the one or more wall parts defining the recess have a cross-section, relative to the direction of in which the first and second parts of the fastener system are joined, which lies within the perimeter of the mounting when viewed in that direction. The recess may be defined by a first planar wall and second opposing planar wall which are linked by semi-circular end walls. The one or more wall parts may be upstanding relative to the first and/or third element. One or more bracing components may be provided between the one or more wall parts and the first element and/or third element. Two curved bracing components may be provided, preferably one above the other. One of the bracing components may join to the one or more wall parts at the upper surface thereof relative to the first element.

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The third element may be curved, at least with respect to the surface facing the item in use. The surface facing the item may be an item contacting surface. Preferably the third element item contacting surface is configured to match the item.

The first element may be substantially planar. The first element may be curved. The first element may be generally horizontally provided in use. Preferably the upper surface of the first element, provided with the one part of the fastener system, and the lower part generally follow one another in profile.

The first element may be provided with a first item contacting surface on the opposite side to the side bearing the one part of the fastener system. The first item contacting surface may be provided between the further element and the first item engaging part. The first element may be provided with a first item contacting surface which is configured to match the external surface of the item at its location of use.

The first item contacting portion may be smooth. Curved transition surfaces may be provided between the first item contacting surface and the first item engaging part/surface and/or the further element.

The cross-section of the opening defined between the first item engaging part/surface, first item contacting surface and further element preferably matches the cross-section of the item at that location, particularly a wall element of the item.

The first item engaging part may be provided by a protrusion from the first element. The protrusion may project at substantially 90° to the first contact surface. The first item engaging part may be provided with a surface, facing the further element and/or adjacent to the first contact surface, which forms the first item engaging surface.

The first item engaging surface may include one or more portions which face the first contact surface. In use, such one or more portions may engage with the edge of a part of the item and preferably at least a part of a face of the item facing away from the contact surface. The first item engaging surface may include one or more portions profiled to correspond to the edge of the item with which they are to engage. In a particular an arcuate surface may be provided as a portion of the first item engaging surface.

At least a part of the first item engaging part and/or first item engaging surface is deformable. Preferably a first rest state is provided and a second deformed state can be provided. Preferably the first item engaging part/surface is provided in the second

deformed state to enable mounting. Preferably the first item engaging part/surface returns to, or towards, the first rest state once mounted.

The first element may be provided with a continuous first item engaging surface. The first item engaging surface may be provided in a number of separate sections. The first element may be provided with a continuous first item contacting part. The first item contacting part may be provided in a number of separate sections.

The second element may be substantially planar. The second element may be curved. The second element may be generally vertically provided in use. Preferably the outside surface of the second element and the inside surface generally follow one another in profile.

The second element may be provided with a second item contacting surface on the inside. The second item contacting surface may be provided between the further element and the second item engaging part. The second element may be provided with a second item contacting surface which is configured to match the external surface of the item at its location of use.

The second item contacting portion may be smooth. Curved transition surfaces may be provided between the second item contacting surface and the second item engaging part/surface and/or the further element.

The cross-section of the opening defined between the second item engaging part/surface, second item contacting surface and further element preferably matches the cross-section of the item at that location, particularly a wall element of the item.

The second item engaging part may be provided by a protrusion from the second element. The protrusion may project at substantially 90° to the second contact surface. The second item engaging part may be provided with a surface, facing the further element and/or adjacent to the second contact surface, which forms the second item engaging surface.

The second item engaging surface may include one or more portions which face the second contact surface. In use, such one or more portions may engage with the edge of a part of the item and preferably at least a part of a face of the item facing away from the contact surface. The second item engaging surface may include one or more portions profiled to correspond to the edge of the item with which they are to engage. In a

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particular an arcuate surface may be provided as a portion of the second item engaging surface.

At least a part of the second item engaging part and/or second item engaging surface is deformable. Preferably a first rest state is provided and a second deformed state can be provided. Preferably the second item engaging part/surface is provided in the second deformed state to enable mounting. Preferably the second item engaging part/surface returns to, or towards, the first rest state once mounted.

The second element may be provided with a continuous second item engaging surface. The second item engaging surface may be provided in a number of separate sections. The second element may be provided with a continuous second item contacting part. The second item contacting part may be provided in a number of separate sections.

The first and/or second item engaging parts/surfaces may wrap around at least a part of the item in use.

One of the first item engaging part or the second item engaging part may be provided by a wall facing the respective element and/or item contacting surface thereof, the wall being provided on a protrusion from its respective element. The wall may be formed at its end solely by a planar inner surface, a planar outer surface and a planar end surface. Preferably one of the first or second item engaging parts is provided with this form. Preferably the other of the first or second item engaging parts is provided with a different form. The different form may include a transition surface between the outer surface and end surface of the wall, particularly a sloping surface between a planar outer surface and planar end surface. The wall may taper towards its end, preferably with the tapering occurring on the outside surface of the wall.

The further element may be substantially planar. The further element may include on or more curved parts. The further element may be generally vertically provided in use. Preferably the outside surface of the further element and the inside surface generally follow one another in profile.

The further element may be provided with a further item contacting surface on the inside. The further item contacting surface may be provided adjacent to the first element contacting surface and the second element contacting surface. The further element may be provided with a further contacting surface which is configured to match the external surface of the item at its location of use, most preferably the back of the item of furniture

which the user rests against. The further contact surface preferably faces at least a part of the first item engaging part/surface and at least a part of the second item engaging part/surface.

The further item contacting portion may be smooth. Curved transition surfaces may be provided between the further item contacting surface and the first and/or second item contacting surfaces.

The further element may link the first element and second element. Preferably the first, second and further elements define a corner shaped mounting. The corner shaped mounting may include the third element. Preferably smooth or curved transition surfaces are provided between the third element and other elements.

The further element may be provided with one or more through apertures. Preferably the further element is provided with at least one through aperture for each first item engaging part and/or protrusion. Preferably the at least one aperture is provided on the part of the further element nearest to the first item engaging part. Preferably the further element is provided with at least one through aperture for each second item engaging part and/or protrusion. Preferably the at least one aperture is provided on the part of the further element nearest to the second item engaging part.

The first and/or second and/or further elements may be angled relative to one another of between 70° and 110° . Preferably the angle between the further element and the first and/or second elements is between 85° and 95° . The first and second element item engaging parts or surfaces may be angled relative to one another of between 70° and 110° in one direction. The first and second element item engaging parts or surfaces may be generally parallel to one another in a second direction.

In an alternative embodiment of the invention at least a part of the first and/or second item engaging part/surface may be provided on a separate component to the rest of the mounting. Preferably the separate component is formed by moulding. Preferably the separate component is of plastics. The separate component may be in the form of a plate. The separate component may be provided with one or more through apertures for fasteners. Preferably the separate component is attached to the mounting by one of more, preferably releasable, fasteners in use. The fasteners may be screws. The fasteners may engage the separate component and the mounting without passing through the item. The fasteners may engage with the first element and/or second element. Preferably at least a

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part of the separate component is provided facing its element, and more particularly its contact surface. Preferably the separate component clamps the item between itself and the contact surface or surfaces.

The invention may usefully be used with a method of attaching a mounting to including one part of a fastener to an item, preferably of furniture, the method including:-

providing a mounting, the mounting including:-

a first element, a second element and a further element;

the first element including a first item contacting surface and a first item engaging surface, at least a portion of the first item engaging surface facing in an opposing direction to the first item contacting surface;

the second element including a second item contacting surface and a second item engaging surface, at least a portion of the second item engaging surface being in opposition to the second item contacting surface;

the further element including a further item contacting surface; wherein the first, second and further item contacting surfaces are each angled relative to one another;

causing at least a part of the first and second item engaging part and/or first and second item engaging surface to be deformed from a first rest state to a second deformed state;

providing the mounting in the mounted position, the first and second item engaging part/surface returning to the first rest state.

The transition from first rest state to deformed state may occur at the same time for both the first and second item engaging surfaces/parts or may occur separately. The deformation may be caused by pushing the mounting on to the item

The method may further include attaching a canopy, sun screen, sunshade, provided with the other part of the fastener system, to the mounting using the part of the fastener system included in the mounting.

The method may further include mounting one or more further mountings on the item at one or more other locations. The locations may be the corners of the item, particularly the top corners.

The item may be a chair, sun lounger or other item of furniture. The item may be a moulded plastics item.

Preferably only one of the first or second item engaging parts is deformed. Preferably the other of the first or second item engaging parts is mounting on the frame by means of a sliding motion. Preferably the other engaging part is so engaged before the part mounted by means of the deformation is engaged. Preferably the sliding motion forms the engagement for the second item engaging part. Preferably the deformation provides the engagement for the first item engaging part. Preferably the sliding motion introduces a part of the frame into position between the item engaging part and the item contacting surface.

The mounting may be removeable from the frame 3. Preferably the mounting is removed after the item attached to the mounting has been removed. Preferably the mounting is removed by sliding the mounting around the frame, particularly around the edge thereof. The movement may seek to move one of the first or second item engaging parts towards the position occupied by the other. The movement may include a rotation of the mounting.

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

Figure 1 shows a perspective view of a lounger and two lounger accessories in accordance with a first embodiment of the present invention;

Figure 2a shows an embodiment of a canopy according to the present invention in a folded position;

Figure 2b shows an embodiment of a view of a canopy according to the present invention in a position of use;

Figure 3 shows a side view of part of the back of a lounger and the part of an attached canopy according to an embodiment of the present invention;

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Figure 4 shows a perspective view of the part of the canopy shown in Figure 3;

Figure 5 shows a perspective view of a canopy according to an embodiment of the present invention with the fabric removed;

Figure 6 illustrates an exploded view of two joints of a canopy according to an embodiment of the present invention;

Figure 7 is a perspective, partially exploded view of a canopy according to another embodiment of the invention;

Figure 8 is a cross-sectional view along axis AA-AA of Figure 7;

Figure 9 shows a perspective view of a lounger and a lounger accessory in accordance with a further embodiment of the present invention;

Figure 10 shows a side view of a first and second component of the fastener system in accordance with an embodiment of the present invention, the second component is shown attached by means of a clamp to the tubular top frame of a lounger;

Figure 11 shows a front view of a first and second component of the fastener system in accordance with an embodiment of the present invention, the second component is shown attached by means of a clamp to the tubular side frame of a lounger.

Figure 12 shows an embodiment of a technique for providing the second component of the fastener recessed in an item of furniture, particularly wooden furniture;

Figure 13 shows an embodiment of a technique for providing a second component of a fastener an item of furniture, particularly of tubular metal construction;

Figure 14 shows the folded form of a canopy according to the present invention;

Figure 15 is a perspective cross-sectional view of an arm according to one form of the invention;

Figure 16 illustrates a particularly preferred form of the invention in exploded form;

Figure 17 illustrates the form of Figure 16 in assembled form;

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Figure 18 shows the shade which can be provided by the Figure 16 and Figure 17 form in use;

Figure 19 shows a further folded form of a canopy according to the invention;

Figure 20 shows a perspective view of one part of a joint;

Figure 21 shows a view of one part of a first joint;

Figure 22 shows a modular first arm concept;

Figure 23 is a front view of a mounting according to one embodiment of the present invention in use on a frame;

Figure 24 is a rear view of the mounting of Figure 23;

Figure 25 is a front view of a mounting according to a further embodiment of the invention;

Figure 26 is an internal view of one half of the mounting of Figure 25;

Figure 27 illustrates a further embodiment of the invention;

Figure 28 is a top perspective view of a mounting according to the further embodiment of Figure 27, in dis assembled state;

Figure 29 is a bottom perspective view of the further embodiment as illustrated in Figure 27 also in dis assembled state;

Figure 30 is a rear perspective view of a part of a furniture frame and a mounting according to the present invention in a detached state;

Figure 31 illustrates the furniture frame and mounting of Figure 1 in an attached state;

Figure 32 is a front view of a chair back incorporating two mountings according to the present invention in attached state;

Figure 33 is a rear view of the chair back of Figure 3 also showing two mountings according to the present invention in attached state;

Figure 34 is an illustration of an alternative embodiment of the invention;

Figure 35 is an illustration in cross-section of one catch portion embodiment suitable for use in the present invention;

Figure 36 is an illustration in cross-section of another catch portion embodiment suitable for use in the present invention;

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Figure 37 is an illustration in cross-section of an alternative form of mounting according to the invention; and

Figure 38 shows the sequence of steps involved in providing a mounting on a frame and in then attaching an item to the mounting.

A wide variety of furniture designs exist, including a large number of recreational furniture forms. The applicant has sought to increase the versatility of these through the development of accessories for that furniture. In doing so the applicant has sought to produce a fastening system for the accessories which is convenient to apply to the furniture. The system can be applied retrospectively to existing examples of designs as well as integrated into new designs. Importantly, the system and accessories are designed to be able to attach to a wide variety of furniture designs of independent manufacturer from the manufacturer of the accessories. This is important in ensuring the accessories can be attached to a variety of furniture designs without extensive cooperation and standardisation of the fastening system and furniture designs. At the same time the applicant has sought to provide the attachment of the accessories in a way which allows them to be easily attached and detached as necessary from the furniture. This is particularly important in the case of hotels, cruise liners and the like where very large numbers of pieces of furniture need to be put out and then stored away each day. The attachment of accessories is only viable in such cases where the attachment and detachment process is very easy.

Over and above the attachment technique itself the applicant has sought to provide a new range of accessories for furniture which are particularly well adapted to purpose due to their design. The accessories include a canopy offering substantial adjustability in terms of positioning, with effective sun shielding properties, but offering ventilation and minimising potentially disruptive effects due to wind resistance. The accessories also include a table design which can be used in a variety of positions and even be used as the tray on which to bring items being served to the furniture and its user.

In the embodiment illustrated in Figure 1 two lounge accessories, a table 2 and a canopy 4, are shown in proximity to the lounge 6 on which they will be used in practice.

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The table 2 has a generally horizontal support surface 10 fixed to a pair of downwardly depending support arms 12 which are attached to the support surface 10 more towards one side 14 than towards the other. Each of the support arms 12 is provided with a first component 16 of a fastener system at the other end. A part of each of the first components 16 of the fastener system is received within a respective second component located in the upper surface of the arm rest 20 to provide the attachment for the table 2. The second component is fully recessed and provided with a flush finish to the arm rest 20 so as to be as attractive as possible.

By providing the support arms 12 towards the one side 14 of the table 2 and by using a fastener system which is fully reversible the table 2 is itself made fully reversible. Thus the table 2 may be mounted so that it extends away to the side of the lounge 6 or, as shown, may extend over the seat 22 of the lounge 6 and thus over the lap of the occupant of the lounge 6. The ability to be able to operate the first component 16 with either hand and the fact that the first component 16 is not handed in its operation renders the system highly flexible. More detail of the possible nature of the engagement between the first and second components of the fastener system follows later in this document.

The table 2 can be attached to the lounge 6 when the lounge is first set up for the day. The orientation of the table 2 can then be changed by the user as their needs change during the day. Alternatively when the user wants a drink or other item requiring the table 2 to be present that item can be brought to the lounge 6 on a table 2 which is then attached and left for the user. The finished item may be removed alone or together with the table 2. Different table designs may be used to bring different items to the lounge 6. For instance whilst a drink may be brought on a small table of the type shown in Figure 1, a meal may be brought on a table (not shown) which spans from one arm rest to the other and is attached to the lounge 6 through arms 12 on both sides which engage with the arm rests 20. Full support in the desired position for a weighty item is thus provided.

With regard to the other accessory illustrated in Figure 1 this is in the form of a canopy 4 intended to provide shade from the sun. The canopy 4 is provided at one end with a pair of arms 32 each having an end which terminates with a first component 34 of the fastener system. A part of the first component 34 of the fastener system is received in each case within a second component 36 of the fastener system to provide the attachment.

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In this embodiment, particularly intended for new products, the second component 36 is recessed into the frame 38 which defines the top edge 40 of the lounger 6. The arms 32 depend away from the first component 34 in a manner generally aligned with the axis of insertion and removal of the first component 34 relative to the second component 36 in the simplest form of the invention. As a result the plane 42 defined between the two arms 32 is generally co-planar with the back 44 of the lounger 6. The other ends of the arms 32 are provided with an adjustable joint, such as a ratchet joint 46, described in more detail below.

Extending from the joints 46 in each case are second arms 48 which again end in a second adjustable joint, such as ratchet joint 50. Extending from the ratchet joint 50 is a further pair of arms 52 linked by an end arm 54. The second arms 48 provide support for canopy material 56 and the further arms 52 and link arm 54 provide support for the canopy material 58.

The canopy material 56 and canopy material 58 may be a single piece of material. A further piece of canopy material may be provided between arms 32 and this may be integral with the piece of canopy material 56 and even piece 58. Alternatively as shown the gap between the arms 32 may be left open to provide ventilation through airflow. A compromise between sun shielding and ventilation may be provided by using a number of separate, loose flaps of material between the arms 32. The canopy material may cover the arms, for instance by looping the material under the arms and attaching it to the canopy material on the other side of the arms.

In an alternative form, not shown, the second joints 50 may be joined by a single support arm in the form of an arc extending out towards the end of the canopy before returning to the joint 50 on the other side of the canopy 30.

The canopy 4 thus provided is in three principal parts A, B and C, as shown in Figures 2a and 2b. In storage or transportable form, the canopy 4 may be folded such that the part A folds against part B and part B is then folded towards part C, with part A being between both part B and part C. When folded in this way a storage and transportation form for the canopy which minimises the space occupied is achieved. Importantly this manner of folding is possible whilst allowing the use of a safety feature. Referring to Figure 2a it is possible to rotate part A relative to part B about the first joint which links them by around 270° anticlockwise, however, beyond that point the joint includes a stop

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which prevents further rotation. This prevents a canopy swinging down on to the user if they carelessly loosen the first joint. It is also possible to rotate part C relative to part B about the second joint which links them by around 270° clockwise. Again further rotation beyond that point is prevented by a stop in the second joint. Again this prevents the end of the canopy swinging down and potentially hitting the user if the second joint is loosened too much.

In use the first part A is generally fixed in position relative to the lounger 6, see Figure 2b. The other two parts, B and C are adjustable in angle relative to the lounger 6 and relative to each other. In general part B will be used angled up to give height clearance for the canopy, whilst part C will be significantly angled down to provide shading for the upper body of the user. The length of the parts/arms may be variable by telescopic action, particularly in the case of part A. The stops in the joint prevent part B going much further in a clockwise direction as seen in the Figure and also prevent part C going down too far and swinging into the user.

In a preferred form the canopy folds in a similar manner to that shown in Figures 2a and 2b. Thus referring to Figure 14 the fastener bearing arm A folds onto the top of, and more preferably between part B. The part C folds onto the top of that structure and more preferably also folds down between. The result is a structure which folds very flat and occupies little space during storage and transport before and after purchase. Face 80 is the underside of part B in use, face 82 is the underside of part C in use and face 84 is the back face of part A in use.

The spacing of the two parts A of the structure is less than the spacing of the two parts B. As a consequence parts A fold down inside the profile of part B to give a lower profile folded structure. The junction between part B and joint 86 is offset so that part C can be folded back directly onto part B in practice as the separation of the two parts C is the same as the separation of the two parts B. In Figure 14 the folding structure is shown open slightly so as to illustrate the position of part A.

Most importantly the material mounted on parts A, B and C and extending between the two parts A, two parts B and two parts C in each case to define the canopy are joined together to form a single canopy cover. The canopy cover is mounted on the arms by wrapping a piece of the canopy around the arm and stitching and/or welding the canopy edge back to the canopy so as to form a sleeve which encloses the arm. The link between

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the canopy covers provided in this way for arms A, arms B and arms C are provided in the form of a strip of fabric which bridges the gap between the canopy cover parts.

Importantly this bridge is provided on the inside of the joint so that this piece of material 88 is relaxed and folds when the canopy is converted from the in use position to the storage/transportation position. If the fabric were provided around the outside of the joint this fabric junction would be stretched during the folding procedure and disrupt the canopy cover configuration.

A similar flat folding structure can be provided for a four component structure, as shown in Figure 19. Here the second arm 90 is the longest and ends in first joint 92 and second joint 94. The first joint 92 is connected to the first arm 96, shown by the cross markings, which is folded inside the profile occupied by the second arms 90. The second joint 94 is connected to the third arm 98 and this arm 98 is shorter than arm 100 so that the third joint 100 lies inside the end 102 of the second arm 90 profile. The further arm 104, shown by dotted markings, is folded inside the profile occupied by the third arm 98. Overall a very flat low profile structure is obtained.

To provide a canopy which is effective in providing shade against sunshine, but which is not prone to catching by the wind it is possible to use one of a variety of fabric designs. Included in these are designs with single threads running in a first direction, alternate passing over and under a pair of threads running in a perpendicular direction. Spacings between the threads in both directions are provided so as to provide through apertures in the fabric which enable the wind to pass through yet give 92% effective shade. A fabric which gives 75% screening against UV can be achieved whilst still permitting 85% of the wind to pass through. In conjunction with even a mild sunscreen cream the present invention can allow a person to stay outside for substantially longer periods. The invention is also effective in keeping a person cool during this period. The shade from the third part can conveniently be increased by folding the fourth/end part back over it.

The canopy may deploy metal arms or may feature all plastic or aluminium arms in which the arms and the joints and fastener are all provided entirely of plastic, a combination of materials is of course possible. In a preferred form the arms are formed of plastic extrusions of generally square cross-section, but with rounded corners. This construction is preferred for the second and further arms. The first arms are preferably of

the form illustrated in Figure 15. The cross-section of Figure 15 clearly shows the I-beam section 122 from which the arm 120 is formed. The I-beam section 122 is supplemented by a series of cross-members 124 which extend diagonally across the groove 126 defined on either side of the I-beam section 122. The cross-members thus define a series of diamond shaped recesses 128 and triangular recesses 130. The I-beam section and cross-members are preferably integral with one another, for instance due to production in the same moulded process.

It is, of course, possible to include a fourth panel on the canopy by inserting a further pair of arms and joints into the overall configuration.

Whilst most recreational furniture, including loungers, have a substantial frame to them which could accommodate the second component of the fastening system recessed within it, the shape and configuration of the frame varies quite considerably from one design to the next, and particularly from one manufacturer to the next. It is desirable for the accessories produced according to the present invention to fit a wide variety of furniture designs and furniture manufacturers without requiring a specific accessory product in each case and / or the requirement for consistent position and orientation of the second component in each type of furniture.

To address this issue the capability to accommodate significant variation in the position and orientation of the second component is built into the invention. Referring to Figures 3 and 4 the function of this aspect of the invention is described.

Figure 3 provides a view of a part of the frame 200 of the lounger. The frame 200 includes a substantially vertical side 202, inclined side 204 and curved top surface 206 which joins the side 204 on one side of the frame 200 to a corresponding surface on the other side of the frame 200. The second component 208 fully recessed within the top surface 206 of the frame 200 of the lounger, with the opening of the second component in the top surface 206 also. This cooperates, as shown, with a first component 210.

As can be seen in Figure 4, with the frame 200 and second component 208 omitted, the first component 210 involves a body portion 212 which enters the second component 208 in use, a pair of dependent arms 214 and a pair of gripper portions 216 at the tops of the arms 214. The continuation part 218 of the body portion 212 connects the first component 210 to disc element 220. The disk element 220 has a central aperture and is received in a channel 224 in the mount 226 for the arm 228. The channel 224 is defined

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by a first side part 230 and by a second side part 232, those side parts being joined by the mount 226. Both parts 230 and 232 also have central apertures which correspond in position and size with aperture 222 in disk 220. A pin received in this aperture allows for the rotation of the disk 220, continuation part 218 and first component 210 relative to the mount 226, arm 228 and the rest of the canopy. Thus whilst the arms 228 of the canopy are maintained substantially vertically aligned, the first component 210 can be angled so as to be aligned with second component 208 in an alignment set by the requirement to have a flush finish for the second component 208 with the curved top surface 206.

The arm 228 is of tubular design and is capable of receiving in its end 236 another, reduced diameter arm which can slide up and down within arm 228. Releasable fixings provided on each of the arms (not shown) allow the arm 228 and second arm to be moved in a telescopic manner to a desired position. Thus, the height of the canopy relative to the item of furniture can be adjusted. A lower height may be required for a lounge than that required for a chair, or vice versa.

Figure 5 illustrates the overall support structure for a canopy of the type provided according to the present invention. Thus this includes a pair of first components 500 attached to one end of arms 502 using mounting 504. The arms 502 are generally vertical. These terminate in joints 506 which lead on to second arms 508, further joints 510 and further arm portions 512 joined to link arm 514 by curves 516. Each of the joints 506 is joined by a cross arm 518, and in the case of joints 510 by cross arm 520. In use of course the canopy is covered by suitable fabric panels.

Figure 6 provides an exploded perspective view of the first component of the fastening system, its interrelationship with first arm 550, joint 552 and arm 554.

The first component 556 is of a similar design to that set out in Figures 3 and 4 above. However, the mounting 558 receives the arm 550 and which joins the two parts 560 and 562 together to define the channel 564 is slightly different. In this case the mount is provided directly between the two parts 560, 562, and also provides there the mount for the arm 550. Again, the position of the arm 550 relative to the first component can be adjusted through a variety of angles by releasing and then tightening nut 564.

The joint 552 features an adjustable knob 300 which is used to release or tighten the joint so as to allow movement and then fix the movement of the arms 550 and 554 relative to one another. The knob 300 cooperates with the head 302 of a shaft 304 (only

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partially shown) which passes through aperture 306 in the arm 554, and corresponding apertures in each of the block 308, first splined element 310, second splined element 312, second block 314, hole 316 in the top of arm 550, cap 318 and on across to the other mounting (not shown) through aperture 320 in the cap 318. The full length of the shaft 304 is not shown. In assembly the arm 554 is received within a corresponding shaped channel 322 in block 308. Protrusions 324 on the first splined part 310 provide cooperation between that first splined part 310 and the block 308. Similar protrusions and cooperation between the second splined part 312 and second block 314 are provided. A spring, not shown, is provided to urge the splined part 310 and 312 apart unless resisted by the tightened knob 300. The spring assists in freeing up the splined parts 310 and 312 for relative movement when a user wants to adjust the position. Tightening up the knob 300 forces the splined parts 310 and 312 together again to provide a fixed system. The second block 314 also has a channel 326 which accommodates the arm 550 in the assembled state. The splines on the first and second splined components 310, 312, allow the two arms to be rotated relative to one another when the tension is released, but fix the position when the knob 300 is tightened.

In a further embodiment of the invention, illustrated in Figure 7, shows the canopy frame 550 which underlies the fabric, not shown, in use. The frame 550 includes a first pair of components 552 attached to one end of arms 554 using a mounting 556. The arms 554 are generally vertical in use. These terminate in joints 558 which lead to second arms 560, further joints 562 and further arm portions 564. The ends of the further arm portions 566 are joined by curve 566. One of the further joints 562 is described in more detail below with reference to Figure 8. Each of the further joints 562 are linked by a cross arm 570 and each of the joints 558 are linked by cross arm 572. The cross arms 570 and 572 are both of hollow square cross-section metal. The hollow 574 receives the shaft 576 of the joint tightening system. Each of the ends of the cross arms 570 and 572 are received in square profiled recesses 578 in the joints 564 and 560 respectively.

The joints 558 and 562 each feature a pair of square cross-sectioned hollows 580 which receive the ends of the square cross-sectioned elements which form the arms 554, second arms 560 and further arms 564 in a sliding engagement.

Referring to Figure 8, the further joint 562 on the right hand side of Figure 7 is shown in assembled cross-section. The cross arm 570 contains the shaft 576 of the

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tightening system. At its end, the shaft 576 is provided with a nut 577 and an engagement with a spring 582. The nut 577 is also attached to knob 584 by cooperation with a recess in the knob 584. The knob 584 is free to rotate relative to block 585 which has a splined surface 586 which engages with a splined surface 588 on block 590. Loosening off the knob 584 allows the block 585 to release its engagement with the other block 590. This allows rotation of one block relative to the other and hence of the further arms 564 relative to arms 560. The spring 582 encourages the splined surfaces 586, 588 back into contact with one another. Tightening the knob 584 fixes the position. The operation of the knob 584 releases and fixes the splined surfaces in both joints 562.

In the embodiment illustrated in Figure 9, the lounge 700 is of a generally similar construction to that discussed above in relation to Figure 1. The canopy 750 includes a pair of arms 732 each having a first end which terminates with a first component 754 of a fastener system. A part of each of the first components 754 of the fastener system is received within a second component which is clamped (clamping means not shown) to a rear portion 758 of the frame 760 of the lounge 700. Details of the clamping are provided below. The remaining structure of the canopy 750 corresponds to that described above for the Figure 1 embodiment, save for the fact that the canopy material is provided as a series of loose, overlapping strips 762.

Figures 10 and 11 illustrate embodiments of the present invention, such as that for the canopy in Figure 7, in which the second components of the fastener system are mounted on the lounge by means of clamps 600. Such a system is particularly useful in relation to tubular furniture. The clamps 600 have a pair of arms 602a, 602b connected by a hinge 604. Each arm 602a, 602b has a cup-shaped portion 604a, 604b in opposition to one another and which can be fastened around a part of the frame 606 of the lounge. In use, a screw threaded component 608 with head 609 adjusts the separation of the arms 602a, 602b of the clamp 600 and is slotted through a mounting hole 610 in a mounting portion 612. The mounting portion 612 is connected to the receiving portion 614 of the second component 616. Tightening the component 608 causes the clamp 600 to securely engage the frame 606. Once fastened to the frame 606 this form of attachment is not used in releasing or reattaching the accessories to the lounge. Instead the fully reversible, quick release, single handed operable fastener system formed by the first and second components themselves is used. In the case of Figure 8 the clamp 600 is used to attach the

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device to a generally horizontal tubular frame 606, for instance at the top of the back of the lounger. In the case of Figure 11 the clamp 600 is used to clamp to a generally vertical tubular frame 606, for instance as provided at the side of the back of the lounger.

Also referring to Figure 10 and Figure 11 the fastener system based on the first component and second component is described. In the case of the first component 800 it generally comprises a body part 802 having a leading edge 804. A pair of deformable arms 806 with grip parts 807 depend from the lead edge 804 of the body portion 802 back towards the trailing edge 808 of the body portion 802. In use, the lead edge 804 of the first component 800 is inserted into the receiving portion 614 of the second component 616. The inside of the receiving portion 614 is configured to cause the arms 806 to be deformed towards the body portion 802 as the lead edge 804 of the first component is pushed into the receiving portion 814. Once the lugs 814 on the arms 806 reach a position corresponding with the position of the apertures 816 in the wall of the receiving portion 814 of the second component 616 the resilient nature of the arms forces them out once more and causes the lugs 814 and apertures 816 to engage and so retain the first and second components together.

The internal surfaces of the receiving portion 616 are configured to abut the surfaces of the body part 802 over a substantial area so as to provide a firm, supported engagement.

With particular application to wooden furniture, the second component of the fastener may be provided recessed into a member 850, Figure 12. The block 850 may be a structural part of the top of the frame of the item of furniture. In some cases it may be necessary to increase the width X of this piece compared with the member used in the design of furniture prior to adapting to accommodate the canopy concept. In other cases, such a modification is not necessary. Either way the mounting location for the second component 852 is provided in the member 850 without any detracting effect on appearance. A clip in cover 854 is ideally provided to cover the top of the recess into which the plastic second component is inserted.

If the second component needs to be retrofitted to a design then it is possible to provide it in a block, in a similar configuration to that of Figure 12, with the block then being attached to the existing item of furniture, for instance on an equivalent to face 856 of Figure 12.

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In the context of tubular furniture frames, Figure 13, it is possible to incorporate the second component 870 on top of, or even to the side of, a mounting piece 872. The mounting piece 872 has a through aperture 874 of cross-section which conforms to the tubular frame 876. In the case of a circular cross-section tube, one or more apertures 878 or notches or grooves in the tube are provided to cooperate with matching protrusions on the inside of the through aperture 874. The mounting piece 872 is slid along the tube until the projection and aperture snap into engagement. Undesired rotation of the mount and canopy relative to the furniture is then resisted in an aesthetically pleasing way.

In a preferred assembly technique, the canopy is provided in the desired shape with a series of sleeves which receive the arms. The sleeves are in the desired position and are formed by folding a portion of the canopy over and welding the end of that portion to the main part of the canopy. The first arms bearing the first component of the fastener are then slid into their sleeves. The joint is then mounted on the end of each of the first arms, by means of a sliding engagement, before the cross-arm is attached. The fastener for that cross-arm is then attached and tightened. The second arms are then slid into the joints and their respective sleeves, before the further joints are slid onto the other ends of the second arms. The cross-arm is then introduced and its fastener introduced and tightened. Finally the further arm is introduced into its sleeve and slid into the ends of the joints to complete the canopy assembly. The provision of the arms, cross-arms and joints as separate components allows the size and shape of canopy to be made to be changed without the need for expensive redesign or changes to the joint manufacturing process. Changing the arm length and canopy shape is all that is needed.

A particularly preferred form of the invention is provided in Figure 16. This four section canopy uses first arms 900 which are the shortest, second arms 902 which are the longest and third arms 904 which are shorter than the second arms and longer than the first arms. It may also use first 906, second 908 and third 910 link arms which are of equivalent length to each other and of the same length as the second further arm/end arm 912. This reduces the number of different components that must be made and reduces the skill level needed for assembly. The design is shown in conjunction with mountings 914 particularly suited to use of plastic chairs. The assembled form is shown in Figure 17.

A key feature in allowing the wind to pass through the fabric and/or not cause problems in other ways is to provide the canopy material between the arms in a tight

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manner. To achieve this successfully a particular assembly sequence is useful. Referring to Figure 16, the assembly starts with the canopy material in the correct form with sleeves to receive both the arms and the links. Link 912 is inserted into its sleeve first. The corner pieces 914 are then attached. Arms 916 are then inserted. Then either link 910 is inserted followed by the first half of the joints 918 or vice versa. The arms 904 are then inserted into their sleeve and then into the end of the other half of joint 918. The end of the arm away from the joint is splayed apart slightly to cause the two halves of the joint 918 to engage. The half of the joint 920 is then provided on the arms 904 and then link 908 inserted or vice versa. Arms 902 are then inserted and the joint 920 is completed. Finally the link arm 906 is pushed into the sleeve and slotted in to one end 922 of the joint 924. At the other end 926, the joint 924 is provided with a partial cut away in its rim so as to allow the link arm 906 to be pushed into that joint also. The partial cut away also provides assistance in guiding the link arm into position correctly. The whole assembly is achieved without any significant slack in the fabric.

The extent of screening achieved using this type of design is shown in Figure 18 in relation to different sun angles (the numbers across the bottom). As can be seen significant and effective sun screening is achieved.

Referring to Figure 20, one half 940 of a joint is shown in perspective. Such a joint is particularly suited for use between the second and third arms. The arm, not shown, is inserted into the body portion 942. The body portion 942 is connected to a disc portion 944 which carries a series of radially extending ridges 946. A surface carrying such ridges is also provided on the other half of the joint, not shown. The ridges 946 engage with one another to resist movement until sufficient force is applied to overcome the resistance level. The centre of the joint is provided with a raised portion in the form of a boss 948. The axis of rotation passes through the centre. The central aperture 950 is of hexagonal cross-section. In this way a hexagonal cross-section link arm is locked in position relative to the joint once inserted. The boss 948 cooperates with a recessed portion around the axis of rotation of the other half.

One or more of the joints, particularly the first joint, may be provided with free rotation between the limit of rotation in one direction and the limit of rotation in the other direction. As shown in Figure 21, the limit of rotation may be defined by the point 960 at which a protrusion on the half of the joint not shown abuts a stop 962 in the half 964

shown. The stop 962 is reinforced by a metal pin 966 provided in the plastic material. A channel 968 in this half provides a pathway through which the protrusion can move during rotation. To assist in stabilising the joint a further projection is provided on the same half as the first. This cooperates at the limit of rotation with a different stop 970. The stop 970 is provided at one end of an external channel 972. The channel 972 is open sided and is separated from the channel 968 by raised part 974. By placing the two stops 180 degrees apart increased stability to the joint is provided. The channel 968 is bridged by a series of webs 976 at a depth which does not interfere with the passage of the protrusion.

To provide increased flexibility in terms of the arm length, particularly in relation to the first arm, a modular arm construction can be used, as illustrated in Figure 22. The plastic arm 980 is provided with a smaller cross-section pin 982 at one end and with an aperture to receive such a pin at the other end 984. Thus a further arm part 986 can be mounted on the first 980 to provide increased length. A first joint is mounted on one end of the first arm and the one part of the fastener is mounted on the other end using the same mounting pin 982 or aperture. This means the expense of producing different length arms is significantly reduced.

The design of the canopy also takes into account wind action. The inclination of the further section, and when present third section, is design such that the wind pushes the canopy down towards the user. This force therefore acts against the rotational stops provided and does not cause the position of the sections to vary, or in an extreme case fold up. Furthermore, this action in conjunction with the mounting design is effective in dissipating the force to the furniture. Throughout an effective canopy and mounting is achieved.

In its various forms it should be noted that the invention achieves an attractive, effective canopy and mount for other items, which does not require bracing pieces between the arms to maintain their position or give them strength. Additionally the canopy folds flat in a space saving manner for ease of transport and storage.

Whilst the present invention has been illustrated in relation to loungers and accessories therefore it should be appreciated that the invention is equally applicable to other items of furniture including tables, chairs and others. The accessories can also be different from those illustrated in the embodiments, including parasols, windbreaks, reading lights, reading stands, or any ancillary product.

A significant number of different furniture designs exist. When seeking to fit a releasable canopy, sunshade or the like to such furniture problems are faced in obtaining a sufficiently secure fitting to resist the turning moment of the canopy attached. This problem is particularly acute with tubular framed furniture where the circular cross-section of the tube does not resist such turning. Mountings which use fixings that pass through the frame are potentially complicated to produce or install, particularly after assembly. Holes through the frame and the like are unattractive when not in use and are difficult for users to provide after purchase when seeking to retrofit. Similar problems and issues are faced when seeking to provide mountings on tubular frames in other situations. This is particularly true in the case of nursery equipment, such as push chairs, buggies, prams and the like.

To address these and other issues, the present invention has been developed. The invention is described below primarily in relation to furniture frames, but is more widely applicable than that.

Referring to the embodiment of Figure 23, the mounting 1001 is designed to be securely attached to the frame 1003 of the item of furniture, such as a chair back. The mounting 1001 is attached to one corner 1005 of the frame 1003. The frame 1003 has a corner 1005 defined by a first tubular element 1007, second tubular element 1009 and connecting tubular curved element 1011 which form the continuous frame. The second element 1009 is generally linear and is generally horizontal. The first element 1007 is also generally linear and depends downward relative to the position of the second element 1009. The first element 1007 can be generally vertically provided, provided on an incline or provided at a variety of angles as the furniture is adjusted, depending on the particular design of furniture.

The mounting 1001 is formed of a first part and a second part, which in the illustrated form are halves, the front half 1013 being the more visible in Figure 23, the rear half 1015 being the more visible in Figure 24.

The front half 1013 includes a first body part 1017 to one side of the channel 1019 which receives the frame 1003 and a second body part 1021 to the other side of the channel 1019. The channel is defined by a body section 1023 which curves out and away from first body part 1017, around the frame 1003 before curving back to join second body part 1021. The body section 1023 is also curved in a further direction to shape the channel

1019 to the form of the parts of the frame 1003 it receives, namely the curved element 1011, and an initial part of each of the first element 1007 and second element 1009.

The first body part 1017 and second body part 1021 have generally planar faces and curved edges 1029 which bring the edge of the body parts 1017, 1019 round to match the edges 1031 of the corresponding body parts of the rear half 1015. The junction between the first body part 1017 and body section 1023 and between the second body part 1021 and body section 1023 are provided with curves 1033 to provide a smooth transition.

The first body part 1017 importantly accommodates the first part of the fastener system within it. The first part in the illustrated form is a female part provided in a recess 1035 which includes within it guide channels for ensuring accurate introduction of the male part 1036 of the fastener system and retaining means for maintaining the male and female parts in firm engagement with one another when desired. The male and female parts are releasable. For more details of a suitable fastener system reference is made to WO98/17922 of the applicant.

Referring to Figure 24 in particular, the manner of introduction of the mounting to an existing tubular cross-section frame is described. The tubular cross-section frame may be existing in the context of being a produced item of furniture ready to leave the factory or may be an existing tubular cross-section frame in the context of being an item of furniture previously bought, some time ago, by a consumer and to which the consumer now desires to attach a mounting.

Firstly, if provided joined together, the front half 1013 and rear half 1015 are separated by releasing the screws 1037. Each screw 1037 passes through an aperture in the rear half 1015 and into a blind bore on the inside of the front half 1013 in the connected state.

The front half 1013 can then be introduced to the front of the frame 1003 so that the first element 1007, curved element 1011 and second element 1009 sit in the channel 1019. The rear half 1015 can then be brought into position from the other side and matched up to the front half 1013. Introduction and tightening of the screws 1037 then brings the two halves into firm contact with one another. The dimensions of the channel 1019 formed by the body section 1023 of the front half 1013 and body section 1023 of the rear half 1015 are such that a firm grip on the frame 1003 is achieved. In the illustrated form the frame 1003 is gripped throughout the length of the channel 1019.

As an alternative, the mounting may provide first engaging portions, on the front half 1013 and rear half 1015 respectively, which engage the frame 1003 and second engaging portions on the front half 1013 and rear half 1015 respectively, which engage the frame 1003. The first and second engaging portions on a half may be spaced from one another by a portion which does not engage the frame. The spacing of the first engaging portions and second engaging portions on the frame should be sufficient that the axis of the channel 1019 or frame 1003 at the position of the first engaging portion or the position of the other first engaging portion, and preferably both, lies on a different axis to the axis of the channel 1019 or frame 1003, at the position of the second engaging portion or the other second engaging portion, and preferably both. If the axes are provided in this way the frame 1003 provides the resistance to turning of the mounting. A situation where the first engaging portions engage the first element 1007 and the second engaging portions engaging the second element 1009 is particularly useful as the linear nature of these two elements and the 90° incline of their axes to one another provides strong resistance to rotation.

In any of the embodiments, where necessary, the grip can be assisted by one or more compliant elements, such as rubber pads, provided in the channel 1019 in positions where they will contact the frame 1003.

Unlike prior art designs, the mounting does not rely on the grip between the mounting and the frame to provide the resistance to relative movement between the mounting and frame. Jaw like clamps and other designs relying on that principal offer insufficient resistance to the rotation of the mounting caused by the leverage effect of the items attached to the fastener. Beneficially the mounting does not require any modification of the frame, for instance the introduction of holes through it to receive fixings for the mount. Such prior art designs are unsuitable for retrofitting by ordinary persons as they require skilled drilling of holes in awkward assembled frames. If pre-provided, such holes are unsightly when not in use. Most usefully the design is suited to retrofitting of the mounting by ordinary people as no dismantling of the frame is needed. Significant benefits arise in the present invention from the use of the pre-existing configuration of the frame, first element 1007, second element 1009, to resist rotation and other movement of the mounting relative to the frame 1003.

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In the assembled form shown the two halves are joined together by the screws 1037, but assistance in keeping the two halves together is provided in the vicinity of the recess 1035 for the female part of the fastener, by the use of cap 1041 which clips over both halves of the design.

Whilst the above mentioned embodiment uses a channel 1019 which is configured to the curved element 1011 of the frame 1003, this is not essential. In the form shown in Figure 25, the mounting is labelled with equivalent numbers for equivalent parts to those described above. In this case the body section 1050 is not curved to give a channel 1019 matching a particular frame 1003 configuration. Instead the body section 1050 is provided with a frame engaging part 1052 towards one end of the channel 1019 which is designed to engage first element 1007 and with a second frame engaging part 1054 towards the other end of the channel which is designed to engage second element 1009. Between the two engaging parts the body section 1050 defines a chamber 1056. The chamber 1056 is significantly greater in extent than the limited form of the channel in the Figure 23 and 24 form. The benefits of this are illustrated in Figure 26.

Generally tubular frames feature a consistent structure at their corners. This is due to the consistent nature of the frame material used by different manufacturers of such furniture. The balance between keeping weight down and achieving the necessary strength means that similar or even the same diameter of tubing is widely used. Furthermore, the limits on the radius of curve which can be formed for such materials generally means consistency in that area too. However, some variation will occur. This variation is accommodated by the Figure 25 and 26 design. Because the chamber 1056 puts less restriction on the frame 1003 to conform to a particular channel shape within the mounting a variety of different lengths and radii of curve for the curved element 1011 can be accommodated successfully. The mounting is still effective due to the engaging parts 1052, 1054. As shown in Figure 26, a relatively tight curved element 1011a and relatively open curved element 1011b can also be accommodated in this design. Greater flexibility to accommodate a range of manufacturers products without special build of the design for each is thus achieved.

In many cases furniture and other items to which it is desired to attach the mounting feature a substantially vertical first tubular element, substantially horizontal second tubular element and curved linking element at an appropriate location. However,

in some designs, see Figure 27, particularly in furniture, the horizontal element x connects via the curved element y to a relatively horizontally aligned element z with the vertical element elsewhere. This element z may be between 0 and 40° to the horizontal. Whilst two more substantially horizontal element z is generally provided at a substantial angle to the other horizontal element x the type of mounting specifically described above is not as well suited to such a case.

As a consequence a further embodiment of the invention set out above has been developed and is illustrated in Figures 27, 28 and 29.

In this case the mounting 1100 again provides a first part and second part generally in the form of halves of the mounting. In this case the first part is more reasonably referred to as the upper half 1102 and the second part as the lower half 1104. The top half 1102 defines a channel 1106 from one side 1108 through to the other side 1110. Similarly the lower half 1104 also defines a channel 1106 from the first side 1108 to the other side 1110. This channel 1106 receives the frame in use.

The channel 1106 is defined by a body section 1112 which merges into a planar face 1114. An equivalent structure is present on both the upper and lower halves 1102, 1104 respectively. A smooth junction between the upper half 1102 and lower half 1104 is provided around all edges.

The first body part 1102 once again accommodates the first part of the fastener system within it. The first part of the illustrated form is a female part provided in a recess 1116 defined by a cup component 1118 which is attached to the planar face 1114 and is provided in an aperture therein. The extent of protrusion of the cup 1118 is accommodated by the lower half 1104 by means of a domed portion 1120. Again the female part is provided with guide channels to ensure accurate introduction of the male part of the fastener system. The co-operation between the male and female parts of the fastener system allows the firm mounting of the canopy on the frame of the furniture in use.

As with the first embodiment of the mounting system, the mounting system is fixed to the item of furniture by introducing one half 1102 to one side of the frame and the other half 1104 to the other side of the frame. The two halves are pushed together so that the frame is received within the channel 1106 and the cup component 1118 is received within the domed portion 1120. The two halves are then fastened together using releasable

fasteners which pass through fixing locations 1122 on the lower half 1104 into further fixing locations 1124 provided in the upper half 1102.

Once again this embodiment of the invention also relies upon the first frame engaging portions 1126 provided on the upper half 1102 and first frame engaging portions 1128 provided on the lower half 1104 engaging the frame at a position which has a different frame axis alignment/channel axis alignment to that at the position of the second frame engaging portions 1130 of the upper half 1102 and the second frame engaging portions 1132 of the lower half 1104.

This embodiment of the invention provides the axis of insertion of the male component into the female component of the fastener system substantially perpendicular to both the axis of the channel/frame at the first frame engaging portion position and also at the second frame engaging portion position. This contrasts with the first embodiment of the invention in which the axis of insertion of the male component into the female component of the fastener system generally corresponds to the axis of the frame and channel at the first frame engaging portion positions and is at 90° to the axis of the channel/frame at the second frame engaging portion positions.

In the context of a mounting for nursery equipment featuring tubular frames, a mounting according to the general principle of Figure 23 can be used. It is preferred, however, that the female part defined by the recess 1035 is provided integrally by the first or second part, rather than by the two parts when positioned together. The two part concept is still used, but provides the clamping action on the tube only.

All of the embodiments of the invention offer the significant advantage that the mountings are self positioning on the frame. The co-operation between the mounting and the frame only truly fits at the intended location due to the careful design of the first and second frame engaging portions and the overall channel design to fit to the frame profile fully at that position only. This makes full use of the distinctive linear-curved-linear form of the frame.

A significant number of different furniture designs exist. When seeking to fit a releasable canopy, sunshade or the like to such furniture problems are faced in obtaining a sufficiently secure fitting to resist the turning moment of the canopy attached. This is a particular problem with resin framed furniture, particularly in the context of retrofitting of such mountings, as the materials from which the frames are formed are not particularly

suited to unskilled modification. The cutting of such frames, drilling of holes in such frames or other modifications are likely to damage the frame, significantly weaken it or leave the frame in an aesthetically unattractive state.

To address these and other issues, the present invention has been developed.

Referring to Figure 30 the invention is explained in the context of a chair, but it should be realised that it is equally applicable to a full range of furniture. The mounting 2001 is designed to be securely attached to the frame 2003 of the item of furniture. The mounting 2001 is intended to attach to one corner 2005 of the frame 2003.

The frame 2003 includes a planar face 2007 which forms the back of the chair against which the user leans in use. The frame 2003 also includes a side wall 2009, top wall 2011 and linking wall 2013 in the form of a curve. The three walls are provided by as a continuous, integral part of the chair. Such a structure is readily formed by moulding plastic materials, for instance. The side wall 2009 is provided in a generally vertical configuration, the top wall 2011 is provided in a generally horizontal configuration and the linking wall 2013 provides for the transition between the two.

Whilst structures include common features of this nature are present in a large variety of furniture designs, the precise structures vary between designs. The issue of providing a mounting for a fastener on such frames is addressed by the mounting of the present invention. In particular, the mounting is able to fit a significant number of structures and is provided in such a way that relatively low cost variations on that basic structure can address most frame structures encountered. Furthermore, the mounting provided is reliable, aesthetically acceptable and easy to attach and detach.

The mounting 2001 is in the form of a corner shaped unit formed from a first element 2015 intended to provide an internal surface 2017 which is configured to match the external surface of the wall 2009, a second element 2019 which is provided with an internal surface 2021 intended to match the external surface of wall 2011. The mounting 2001 further includes a third curved element 2023 which is provided with an internal surface 2025 intended to match to the external surface of the curved wall 2013 and with a further element 2027 which is provided with an internal surface 2029 intended to match with the planar face 2007 of the chair.

The first element 2015 is provided with a protrusion 2031 which extends generally perpendicular relative to the surface 2017. The protrusion 2031 is provided with

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an internal surface 2033 configured to match the edge 2035 of the first wall 2009. At the end of the protrusion 2031 is a catch portion 2037 which is intended to project in and behind the inner most part of edge 2035 of the first wall 2009. At least a portion of the projection 2031 is deformable so as to enable the engagement to arise. This is achieved by the catch portion 2037 being deforming away from further element 2027 upon contact with the edge 2035, the catch portion 2037 sliding across the edge 2035 and then returning towards the further element 2027 once past the edge 2035. A snap fit is preferred.

The second element 2019 is similarly provided with a protrusion in the form of second protrusion 2039. This protrusion 2039 is provided with an internal surface 2041 which matches the edge profile 2043 of second wall. The projection 2039 is further provided with a catch portion 2045 which is intended to extend in and behind the innermost edge of edge 2043. Again at least a part of the protrusion 2039 is deformable to allow the mounting to be introduced into position.

In an alternative form, the protrusion 2031 and catch portion 2037 and/or second protrusion 2039 and catch portion 2045 can be provided in two or more discrete sections with gaps between them. The catch portion and/or the protrusion may be absent in the gaps. Two such sections are preferred, as can be seen in Figure 37. Ideally a hole is provided in the further element 2027 in that part of the further element which is directly in front of the protrusion and catch portion sections., see Figure 37.

In one technique, to fasten the mounting 2001 to the frame 2003 the mounting 2001 is generally aligned with the corner of the frame 2003. The application of force to the mounting 2001 along the general direction of arrow A results in both of the protrusions 2031 and 2039 being deformed. The protrusions can then pass over the edges 2035, 2043 and then return into position behind the edges 2035, 2043. Once in this position the engagement of the edges 2035, 2043 with internal surfaces 2033, 2041 and with catch portions 2037, 2045 restrains the mounting 2001 against any attempt to remove it. A firm mounting for normal use is thus provided.

If it is necessary to remove the mounting 2001 then the catch portions 2037, 2045 can be manually manipulated away from the further element 2029 so as to release the engagement.

As an alternative for introducing the mounting 2001 onto the frame 2003 the protrusions could be separately deformed. This would involve the application of force

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generally along arrow B or generally along arrow C first, followed by the application of force along the other of those two directions.

As a further alternative for introducing the mounting 2001 onto the frame 2003, illustrated in the sequence of Figure 38, it is possible to click the catch portion 2037 into place with the edge 2035 of the frame in contact with the internal surface 2033. The mounting can then be slid down further, generally in the direction of arrow B. No deformation of the catch portion 2037 is necessary to achieve this. Continuing this motion downward brings the catch portion 2045 into proximity with the top 2011 of the frame 2003 and particularly the edge 2043. The application of moderate downward force is sufficient to cause the catch portion 2045 to deform and so bring the edge 2043 into cooperative engagement with the internal surface 2041. This can be assisted by optional leverage of the catch portion 2045 using the hand. Once the mounting is in position then the item can be attached using the fastener 2046. This can be released as desired to remove the item. Specific profiles for the catch portions and internal surfaces of particular use in this form of the invention are described below, with reference to Figures 35 and 36.

The mounted position is shown in Figure 31 and Figure 38.

The mounting 2001 provides on the first element 2019 a first part of the mounting system. In this illustration the first part is a female part 2047 provided within recess 2049. The recess 2049 is bounded by walls 2051 and these are provided with bracing elements 2053 and 2055 to provide a firm engagement location between the first component of the fastening system provided by the mounting 2001 and the second component of the fastening system provided on the item to be mounted. In the illustrated example, the first part of the fastening system in use, receives a second part of the fastening system in the form of a male part. The male and female parts are releasably engagable with one another. Ideally the canopy, sunshade and the like are fastened to the furniture frame using one or more such fastener systems.

In Figure 32 two mountings 2001 according to the present invention are shown in position, one on either corner of the frame 2003. The mountings 2001 on each corner are mirror images of each other. The substantial further element 2027 is most beneficial in resisting the turning moment applied by the canopy which extends away from the front face of the furniture out over the user. The large plate provided by the further element 2027 serves to dissipate the load. The positioning of the mountings and their form also

assists in dissipating loads down the side wall of the furniture. The further element 2027 also keeps the first element 2015 and second element 2019 in position relative to one another. The relative positions of their respective protrusions 2031 and 2039 are also maintained as a result. Once mounted the canopy itself also assists in providing rigidity to the overall structure and in preventing movement of the mountings relative to the frame.

Figure 33 shows a rear view of the mountings on the furniture frame 2003.

As the mounting 2001 is a one piece fastener it has the advantage that it does not require any modification, alteration or adaptation of the frame 2003 on which it is to be mounted. No holes need to be drilled, no working of the frame 2003 in any way is required. This makes such mountings 2001 particularly suitable for application to frames 2003 during retrofitting. It also enables this option of providing a mounting 2001 for a fastener system to be offered on new items of furniture, without being an inevitable part thereof.

Variations in the mounting 2001 to suit other frames 2003 can readily be provided by modifying the structure slightly and moulding a revised mounting 2001. Modifications may include changes to accommodate different wall thicknesses, different wall depths, different angles between side and upper walls, different curved element profiles, different edge profiles and the like.

A further embodiment of the invention is illustrated in Figure 34. In this case the first clamp portion 2100 is provided in a slightly different manner. The clamp portion 2100 is separate from the remainder of the mounting 2001 in the unassembled form. The mounting 2001 is introduced in a similar way to that outlined above. However, there is no need to deform any part of the mounting during its introduction to the mounted position. Instead, the clamp portion 2100 is then introduced into position behind the wall 2009, in firm contact with it. The clamp portion is then fastened to the remainder of the mounting 2001 using releasable fasteners 2102 which engage with the protrusion 2031. The releasable fasteners, such as screws, pass through the clamp portion and into the protrusion 2031, but without touching or damaging the frame wall 2009. The tightening of these fasteners 2102 in effect clamps the wall 2009 between the clamp portion 2100 and the first element 2015. A similar style clamp portion 2104 is provided for use in conjunction with the other protrusion 2039. Instead of engaging the protrusions 2031, 2039 it would be possible for the releasable fasteners 2102 to pass through the clamp

portions 2100, 2104, through the walls 2009, 2011 and then into the mounting 2001, but this is less desirable.

Catch portions and internal surfaces particularly appropriate for use in the above mentioned technique of sliding the mounting onto the frame initially are illustrated in Figure 35 and 36. In Figure 35 a side catch portion 2037 is illustrated in plan view. It features the internal surface 2033 which is profiled to match the edge of the frame in question. The wall 2600 defining the bounds of the internal surface is relatively large as the edge and catch portion 2037 do not need to deform to engage one another as the sliding introduction is used. A particularly strong engagement is provided as a result. Figure 36 shows in side view the different profile used for the top catch portion 2045. In this case the catch portion 2045 does need to deform so as to allow the edge to pass it and reach an engagement with the internal surface 2041 when the mounting has slid down. To assist this process the wall 2700 defining in part the internal surface 2041 has a lesser extent than wall 2600 and additionally includes a sloping end portion 2702. This slope encourages the passage of the edge to its engagement position and assists in causing the catch portion 2045 to deform. Of course the provision of the side and top catch portion in this way could be reversed, with a sliding engagement for the top and snap fit engagement for the side.

If it is necessary to remove the mounting 2001 from the frame 2003, then this can readily be achieved. Having removed the canopy from its engagement with the mountings 2001, each mounting can be removed by sliding the mounting around the edge of the frame from its use position towards the top edge. This motion readily causes the mounting 2001 to disengage from the frame 2003. In the Figure 31 illustration, this movement would involve a clockwise style rotation of the mounting 2001 towards the top edge of the frame. For the mounting on the other corner of the frame, not shown, the removal technique would involve an anti-clockwise rotation. Advantageously removal in this way is prevented whilst the canopy is in position as the arms of the canopy serve to maintain the position of the two mountings 2001 and hence resist any such movement.

In Figure 37 an alternative form for the mounting is illustrated. The mounting is the same in respect of each component, apart from the form of the further element 2027. The cross-section removes the protrusions 2031, 2039 from view and clearly shows a number of through apertures 2800 in the further element 2027. One or more of these

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apertures 2800 are provided in line with the protrusions 2031, 2039 so as to assist in the full and complete moulding of those protrusions during the production process.

CLAIMS

1. A canopy, the canopy including:
 - a first part which includes a first arm, the first arm being provided with a first component of a fastener system at or towards one end, the first arm being provided with a joint at or towards the other end;
 - a second part which includes a second arm, the joint connecting the second arm to the first arm, the joint allowing the orientation of the first arm to the second arm to be varied, the second arm being provided with a second joint, the second arm supporting a screen;
 - a third part which includes a further arm, the second joint connecting the further arm to the second arm, the second joint allowing the orientation of the second arm to the further arm to be varied, the further arm supporting a screen;and
 - characterised in that the second part and the third part are adjustable in angle relative to one another.
2. A canopy according to claim 1 in which the second arm is connected to the further arm indirectly through a third arm.
3. A canopy according to claim 1 or claim 2 in which pairs of first and second and/or third and further arms are provided.
4. A canopy according to any preceding claim in which the canopy is for attachment to an item of furniture and the item of furniture is a chair, a deckchair, a lounger, a recliner, a seat or a reclining seat.
5. A canopy according to any preceding claim in which the length of the first arm is variable through the use of one or more repeat units.

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6. A canopy according to any preceding claim in which one or more of the joints includes a ratchet in the form of a series of radially extending ridges provided on a surface, such a surface being provided for each part of the joint, the surfaces carry the ridges engaging with one another.
7. A canopy according to claim 6 in which one part of the joint is provided with a raised portion which surrounds the axis of rotation and cooperates with a recessed portion around the axis of rotation of the other part.
8. A canopy according to any preceding claim in which one or more of the joints, particularly the first joint, are provided with a limit of rotation in one direction, the limit of rotation being provided by a protrusion on one part of the joint and a stop on the other part of the joint, the two abutting one another at the limit of rotation.
9. A canopy according to claim 8 in which the stop is provided with a metal reinforcing component.
10. A canopy according to claim 8 or claim 9 in which the joint is provided with a further projection which also cooperates with a stop at the limit of rotation, the further projection being provided circumferentially spaced apart from the first protrusion by an angle of between 160 and 200 degrees.
11. A canopy according to any preceding claim in which the canopy is in four or more sections.
12. A canopy according to claim 12 in which the first section is defined by a pair of first arms and a link between the first joints, the second section is defined by a pair of second arms, the link between the first joints and the link between the second joints, the third section is defined by a pair of further arms, the link between the second joints and the link between the further joints.

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13. A canopy according to any preceding claim in which the separation between the first arms is less than the separation between the second arms and the separation between the further arms is less than the separation between the third arms.
14. A canopy according to claim 3 or any claim depending directly or indirectly therefrom in which the first arms are shorter than the second arms and the further arms are shorter than the third arms.