



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
27.05.2015 Bulletin 2015/22

(51) Int Cl.:
A47C 21/08 (2006.01) **A47D 7/01** (2006.01)
A47D 11/00 (2006.01) **A47D 15/00** (2006.01)
A47D 7/00 (2006.01)

(21) Application number: **14191121.4**

(22) Date of filing: **30.10.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

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(30) Priority: **31.10.2013 GB 201319281**
02.05.2014 GB 201407838

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(54) **Bed and method of manufacture thereof**

(57) A framework for a bed is provided. The framework includes one or more frame members and one or more side wall members attached thereto. The one or more side wall members include attachment means, wherein the attachment means form at least one protrusion

from one of the one or more side wall members or the frame members, which are provided to substantially surround the perimeter of a portion of the other of the one or more frame members or the one or more side wall members.

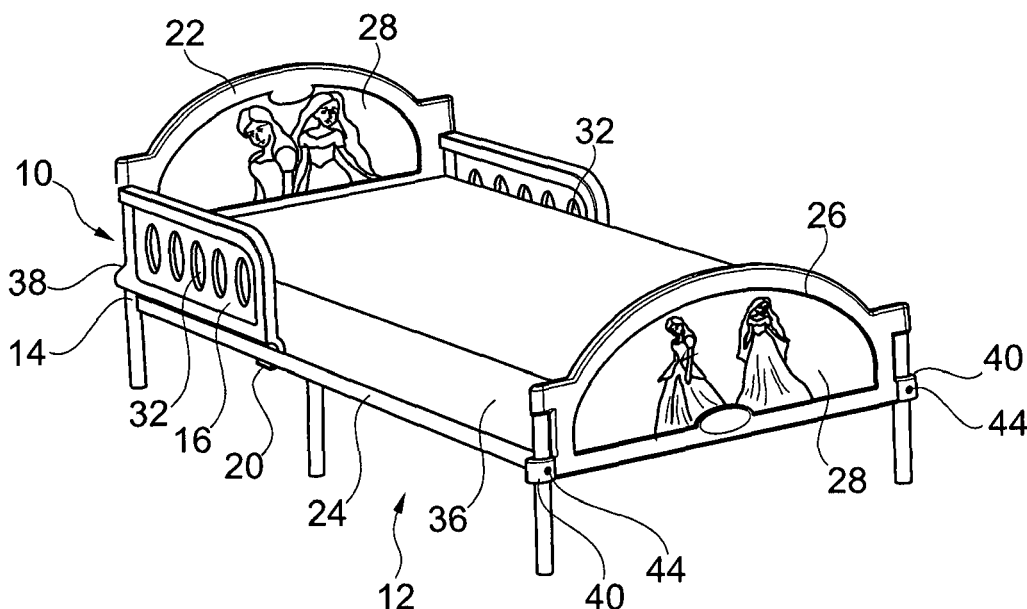


Fig. 5

Description

[0001] The invention to which this application relates is a bed and a method of manufacture thereof.

[0002] Although the following description refers exclusively to structural improvements for a child's bed, the person skilled in the art will appreciate that the present invention could also be used in the construction of larger, adult-sized beds and other framework designs.

[0003] Infant beds, also known as cots or cribs, are small beds designed specifically for infants and very young children. They are designed with the intention of preventing the child occupant from leaving the bed and typically have a cage-like design. At a certain age, the infant will outgrow the infant bed and will require transitioning to a toddler bed. Toddler beds are provided without the cage-like framework surrounding all four sides of the bed; however, they are provided with low side rails or supports, often referred to as "cot sides", which prevent the toddler from accidentally rolling and falling out of bed while asleep.

[0004] The side rails of the toddler beds are typically attached to the main framework of the bed, in particular the uprights at the corners of the bed, in a clip-on fashion. The side rail may also have a further attachment to the frame portion on which the mattress rests, often screwed in place to the frame and/or middle leg of the bed. However, the clip-on nature of the side rails leads to them being structurally unsafe. It is possible that the side rail may unclip from the frame when a small degree of force is applied to it, for example, if a child occupant becomes restless and plays with the rails, or if an unforeseen load or weight comes down upon the rail.

[0005] Further structural issues exist in current toddler bed frame designs. Headboards in such beds are generally placed so that they sit above the base of the bed. This placement requires that additional slats or support bars are located across the width of the bed and under the headboard, in order to pass the appropriate testing to go to market. Toddler beds that are currently on the market also generally use a rudimentary attachment system, which connects the headboard and/or footboard of the bed to the metal legs. Such systems are based on small U-shaped segments, often made from metal that are located within the moulded headboard and/or footboard of the bed and attached to the metal legs of a bed by a screw. However, after extended use of the bed or when too much force is applied when screwing the U-shaped metal segment, the segment may bend, thus reducing the stability of the bed frame. This can be a particular disadvantage given that the stability of such toddler beds is not ideal at the best of times.

[0006] It is also common, as toddlers begin to develop their own tastes and character that toddler beds are provided as themed bed or depicting images of licensed characters and/or the like. Images may therefore be positioned on the headboard and footboard of the toddler bed. Commonly, these are provided as cardboard prints

cut to shape and held in place by a plastic trim with screws. This arrangement forms the headboards and footboards. However, a problem with this structural design is that the cardboard body of the headboard or footboard is liable to damage from knocks, bumps, restless child occupants and/or the like, damaging the bed.

[0007] Bed bases in children's beds are generally provided as frameworks and horizontal side bars having a fabric material extending from one side to the other to support a mattress. The side bars are usually attached to the vertical bars provided to support the head and foot boards of the bed. Because the bars are, more often than not, formed from metal, the attachment is made by crimping the ends of the side bars such that they can fit and be secured within a hole that has been cut into the vertical bar.

[0008] The shoulder created by crimping in the side bars limits how close the head and/or foot boards can be to the bed frame cross bars that extend between parallel side bars. This is an important drawback because there are strict limits regarding the allowable space between these components. Ideally, this space should be minimised.

[0009] It is therefore an aim of the present invention to provide a bed design and framework that overcomes the aforementioned problems in the prior art and provides a framework for a bed with improved safety and ease of assembly.

[0010] It is a further aim of the present invention to provide a connecting means between frame components of a bed that overcomes the aforementioned problems in the prior art.

[0011] It is yet a further aim of the present invention to provide a method of manufacturing a connecting means that overcomes the aforementioned problems in the prior art.

[0012] According to a first aspect of the invention there is provided a framework for a bed comprising one or more frame members and one or more side wall members attached thereto, said one or more side wall members including attachment means, wherein the attachment means form at least one protrusion from the one or more side wall members, surrounding substantially the entire perimeter of the one or more frame members.

[0013] Thus, the present invention provides an attachment between at least one frame member of a bed and a side wall member, with the improved structural feature that the attachment means fully surrounds the frame member, rather than simply being a "clip-on" arrangement. This provides a more secure attachment and whereas a small degree of force may be applied to break/disconnect the "clip-on" arrangement commonly found in toddler beds, a similar or even greater degree of force applied to the attachment of the present invention will fail to have the same effect.

[0014] In one embodiment, said attachment means comprise at least two protrusions from the one or more side wall members. Typically, said at least two protru-

sions are provided to attach to the same frame member.

[0015] Thus, the provision of a further protrusion will add strength and stability to the one or more side wall members.

[0016] In one embodiment, the one or more frame members to which the one or more side wall members attach are upright frames formed at a corner of a bed. Typically, said frame members are cylindrical in shape and, correspondingly, said protrusions are ring/doughnut-shaped. Further typically, said protrusions surround the entire circumference of the frame members.

[0017] In one embodiment, said one or more side wall members include additional attachment means for attachment to a second frame member. Typically, said second frame member is located perpendicular to the first frame member, in the plane of the one or more side wall members.

[0018] For example, the one or more side wall members may primarily be attached to an upright post/pole/strut/frame of a bed at a first end, and further attached to a horizontal frame member of the bed, typically along the length of the bed, at a second end of the one or more side wall members.

[0019] In one embodiment, said additional attachment means may further include screw fixing and/or the like. Thus, the one or more side wall members may be securely fixed at a second end a predetermined distance along the length of the bed.

[0020] In one embodiment, said one or more side wall members are formed from a plastics material. Typically, said one or more side wall members are formed from blow-moulded plastics material. Further typically, said at least one protrusion is formed from a plastics or blow-moulded plastics material. In one embodiment, said one or more frame members are formed from metal.

[0021] In one embodiment, at least one aperture is formed in said one or more side wall members, extending from a first face of the one or more side wall members through to a second face. Typically, a plurality of apertures are formed in said one or more side wall members.

[0022] In another aspect of the present invention, there is provided a method of manufacturing a framework for a bed comprising one or more frame members and one or more side wall members attached thereto, said one or more side wall members including attachment means, wherein the attachment means form at least one protrusion from the one or more side wall members, surrounding substantially the entire perimeter of the one or more frame members.

[0023] In yet another aspect of the present invention there is provided a bed frame comprising a bed base, for location of a mattress and/or the like, and a head and/or foot board, wherein said head and/or foot board is located in a position such that a lower edge of said headboard rests at substantially the same height as the bed base.

[0024] Thus, as opposed to traditional beds wherein a lower edge of the head and/or foot board may rest at the same height as the top of a mattress resting on a bed

base, the bed of the present invention comprises a head and/or foot board having a lower edge resting at substantially the same height as the bed base. Such a structural improvement removes the need for additional safety bars and/or slats, to provide the required support, to be positioned across the width of the bed along the bed base, therefore increasing the ease of assembly of such a bed.

[0025] In one embodiment, said head and/or foot board is formed from a plastics material. Typically, said head and/or foot board is formed from blow-moulded plastics material. Further typically, said blow-moulded plastics material has an interior in which additional formations are provided. Yet further typically, said formations are provided in the form of internal ribs. The provision of such ribs is designed to provide additional rigidity and structural support to said head and/or foot board.

[0026] In one embodiment, said bed base comprises a fabric base. Typically, a mattress and/or the like for a bed may be located on said fabric base. Thus, assembly of the bed frame is made significantly simpler by providing a fabric base for the bed, as opposed to a series of slats or struts that traditionally rest across the width of the bed frame.

[0027] In one embodiment, said head and/or foot board includes a fabric print adhered to a face thereof. Typically, said fabric print is adhered using an oil-based material. Further typically, said fabric print adheres to a plastic or blow-moulded plastic face of said head and/or foot board.

[0028] In an alternative embodiment, said head and/or foot board includes a recess located on at least one face thereof. Typically, a panel may be located within said recess. Further typically, said panel may be formed from plastics material, wood, low density board, medium density fibre (MDF) and/or the like. Yet further typically, a print design or image may be applied to said panel by heat transfer and/or the like.

[0029] In one embodiment, said panel is retained in said recess by retaining means. Typically, said retaining means are in the form of a plurality of rivets.

[0030] In yet a further aspect of the present invention there is provided a head and/or footboard for a bed, wherein said head and/or foot board includes a fabric print adhered to a face thereof.

[0031] In yet another aspect of the present invention there is provided a bed frame comprising a bed base, for location of a mattress and/or the like, one or more frame members, and a head and/or foot board, wherein attachment means are provided in the form of one or more protrusions from the head and/or foot board, surrounding substantially the entire perimeter of the one or more frame members.

[0032] In one embodiment, the one or more frame members to which the one or more side wall members attach are upright frames formed at a corner of a bed. Typically, said frame members are cylindrical in shape and, correspondingly, said protrusions are ring/doughnut-shaped. Further typically, said protrusions surround the entire circumference of the frame members.

[0033] In one embodiment, said one or more protrusions comprise a pair of diametrically opposing apertures. Typically, an elongate member may be located through and between the pair of diametrically opposing apertures. Further typically, said elongate member is a screw, tack, nail and/or the like.

[0034] In one embodiment, the one or more frame members comprise a corresponding pair of diametrically opposing apertures. Typically, said elongate member is located through and between the pairs of diametrically opposing apertures, in the one or more frame members and the protrusions.

[0035] Thus, the head board and/or footboard of a bed may be securely attached to one or more, typically up-right, frame members by means of an elongate member inserted through corresponding diametrically opposing apertures located in both the attachment means associated with the head board and/or footboard and the frame members. This provides a significant advantage over the prior art, affording the bed improved stability and a more robust attachment means.

[0036] In yet another aspect of the present invention there is provided a frame for a bed, said frame including a base for location of a mattress and/or the like, at least two elongate members extending between a head and a foot of the frame and connected to respective vertical head and foot members, characterised in that connecting means are provided between ends of the elongate members and head and foot members to which they connect.

[0037] In one embodiment, the connecting means is provided with a sectional profile corresponding to that of the elongate members. Typically, the connecting means is provided with a substantially circular cross-section.

[0038] In one embodiment, the connecting means includes a first, substantially planar side and a second side formed to fit an outer profile of the head and/or foot member to which it connects. For example, if the head and/or foot member has a cylindrical shape, the second side of the connecting means may be provided as a concave side.

[0039] In one embodiment, the connecting means includes a shoulder located about at least part of its perimeter. Typically, said shoulder may rest at the ends of said elongate members.

[0040] In one embodiment, said connecting means has a first portion extending from a shoulder to a first side, having a diameter smaller than a diameter of a second portion of the connecting means extending between said shoulder and a second side.

[0041] In one embodiment, said first portion locates within an end of the elongate member to which the connecting means attaches. Typically, said connecting means is prevented from locating fully within an end of the elongate member by said shoulder.

[0042] In one embodiment, the at least two elongate members are substantially parallel. Typically, the at least two elongate members are provided in the form of at least two side bars of the bed frame.

[0043] In one embodiment, at least two members extend between, and are substantially perpendicular to, the side bars. Typically, said at least two members are provided in the form of at least two cross bars. Further typically, said cross bars are located substantially at a head and/or foot of said bed frame.

[0044] In one embodiment, at least two vertical head members are provided. Typically, said head members are connected via a headboard located therebetween.

[0045] In one embodiment, at least two vertical foot members are provided. Typically, said foot members are connected via a headboard located therebetween.

[0046] In one embodiment, said at least two elongate members are formed of metal. In one embodiment, said connecting means is formed from a plastics material.

[0047] In one embodiment, said connecting means is provided with a third portion. Typically, said third portion extends outwardly from the second side of the connecting means. Further typically, said third portion has a diameter less than that of the first portion.

[0048] In one embodiment, an aperture is provided in an outward face of the third portion. Typically, said aperture extends a predetermined distance into said third portion. Further typically, said aperture has an interior wall provided with a screw thread thereon.

[0049] In one embodiment, said vertical head and/or foot members are provided with a first aperture, sized to receive said third portion of the connecting means therein, and a second, diametrically opposing aperture, sized to receive bolt and/or screw means therethrough. Typically, bolt and/or screw means are provided, extending through said second, aperture in the vertical head and/or foot members and into said aperture in the third portion of the connecting means, connecting the same together.

[0050] In one embodiment, said first portion of the connecting means is provided with a pair of diametrically opposing apertures. Typically, a corresponding pair of diametrically opposing apertures is located near an end of the elongate members. Further typically, bolt and/or screw means are provided, extending through said two pairs of diametrically opposing apertures, connecting the elongate members to the connecting means.

[0051] In yet another aspect of the present invention there is provided a connecting means including a first portion having a first diameter; a second portion located at an end of said first portion and having a second, larger diameter; said second portion having a concave face; and wherein a third portion extends outwardly from the face of said second portion and having a diameter less than or equal to that of the first portion.

[0052] In one embodiment, said connecting means has a longitudinal axis about which it has a substantially circular cross-section.

[0053] In one embodiment, the connecting means includes a shoulder, located about at least part of its perimeter. Typically, said shoulder is located between said first and said second portions.

[0054] In one embodiment, said third portion includes

an outward face, having an aperture located therein. Typically, said aperture extends a predetermined distance into said third portion. Further typically, said aperture has an interior wall provided with a screw thread thereon.

[0055] In one embodiment, said first portion is provided with a pair of diametrically opposing apertures.

[0056] In yet another aspect of the present invention there is provided a bed frame including at least two substantially perpendicular frame members, characterised in that connecting means is provided located in and between the at least two members, connecting the same together.

[0057] In one embodiment, a connection formed between the at least two frame members is substantially a T-shaped connection.

[0058] In yet another aspect of the present invention, there is provided a method of manufacturing a connecting means including a first portion having a first diameter; a second portion located at an end of said first portion and having a second, larger diameter; said second portion having a concave face; and wherein a third portion extends outwardly from the face of said second portion and having a diameter less than or equal to that of the first portion.

[0059] Thus, the provision of connecting means as described above allows a bed frame having one or more cross bars to locate said cross bars in closer proximity to a head and/or foot board than the beds/bed frames described in the prior art.

[0060] Embodiments of the present invention will now be described with reference to the accompanying figures, wherein:

Figures 1a - b represent an example of a framework for a bed common in the prior art, and the problems associated therewith.

Figure 2 illustrates a framework for a bed and associated attachment means, in accordance with an embodiment of the present invention.

Figure 3 illustrates a side wall member and its connection with a frame member, in accordance with an embodiment of the present invention.

Figure 4 illustrates a pair of side wall members connect to frame members and a headboard for a bed, in accordance with an embodiment of the present invention.

Figure 5 illustrates a toddler bed utilising the framework and attachment means in accordance with an embodiment of the present invention.

Figures 6a - b illustrate a headboard of a bed comprising additional attachment means, in accordance with an embodiment of the present invention.

Figures 7a - c illustrate a footboard of a bed comprising additional attachment means, in accordance with an embodiment of the present invention.

Figures 8a - c illustrates plan and perspective views of a connecting means in accordance with an embodiment of the present invention.

Figures 9a - b illustrate plan and perspective views of a framework for a bed and associated connecting means, in accordance with an embodiment of the present invention.

[0061] Referring firstly to Figures 1a - b there is illustrated an example of a framework (1) for a toddler bed common in the prior art, as discussed above. The framework (1) shows a portion of a side rail (3), which is attached to the said framework (1), in particular the upright (5) that would be located at the corners of the bed, in a "clip-on" fashion. The attachment means (7) only partially surrounds the upright (5) of the bed frame when clipping into place. As shown by arrows "A" in Figure 1b, the side rail (3) may be easily detached from the upright (5) when only a small amount of force is applied thereto. This clip-on nature of the attachment means (7) connecting the side rails (3) to the uprights (5) leads to them being structurally unsafe as the parts may separate relatively easily, for example, if a child occupant becomes restless and plays with the rails, or if an unforeseen load or weight comes down upon the rail.

[0062] Referring to Figure 2, there is illustrated a framework (10) of a portion of a toddler bed (12) in the form of an upright frame member (14) connected to a side rail (16) via attachment means (18). The attachment means (18) in accordance with an embodiment of the present invention are in the form of a pair of protrusions extending from the side rail (16), which surround substantially the entire perimeter of the upright frame member (14). It is perfectly feasible that a single attachment means (18) will suffice. However, in order to provide optimum strength, stability and safety, it is preferred that two attachment means (18) are provided, extending from a side rail (16) and connecting to the same upright frame member (14). The framework (10) according to a preferred embodiment of the present invention therefore provides an attachment between at least one upright frame member (14) of a toddler bed (12) and a side rail (16), with the improved structural feature that the attachment means (18) fully surrounds the frame member (14), rather than simply being in the form of a "clip-on" arrangement. This provides a far more secure attachment and whereas a small degree of force may be applied to break/disconnect the "clip-on" arrangement commonly found in the example depicted in Figures 1a - b, a similar or even greater degree of force applied to the attachment of the present invention will fail to have the same effect.

[0063] It is envisaged that the upright frame members (14) of the toddler bed (12) are cylindrical in shape and

therefore, the corresponding, attachment means (18) extending from the side rail (16) are ring/doughnut-shaped, as shown clearly in Figures 2 and 3. The ring/doughnut-shaped attachment means (18) therefore surround the entire circumference of the frame members (14). This arrangement has the advantage that the side rail (16) may be allowed to rotate freely about the upright frame member (14), should a user wish to remove the rail temporarily from the side of the bed (12). Alternatively, the upright frame members (14) may be of varying cross-sectional shapes, such as squares, hexagons and/or the like, and the attachment means (18) will be shaped accordingly to surround the perimeter of the upright (14). In embodiments such as this, the side rails (16) may be rotated about the upright (14) outwardly of the bed (12) to set positions, depending on the cross-sectional shape of the upright (14).

[0064] Referring now to Figures 4 and 5, there is illustrated a pair of side rails (16) connected to uprights (14) and a headboard (22). The side rails (16) include further attachment means (20) for attachment to a second frame member (24). The second frame member (24) is located perpendicular to the upright frame member (14), in the plane of the side rail (16), and in this embodiment forms a frame member running the length of the bed (12). Such attachment will maintain the side rail (16) in position and secure at both ends. The additional attachment means (20) be in the form of the attachment means (18), providing a secure attachment to the horizontal frame member (24). Alternatively, such a secure attachment may not be required, in which case a "clip-on" arrangement, or simply a protrusion shaped to complement the cross-sectional shape of the frame member (24) may suffice. This additional attachment means (20) may further include screw fixing and/or the like, in order that it may be securely fixed at that end a predetermined distance along the length of the bed (12).

[0065] The side rails (16) and the attachment means (18) are generally formed from a plastics material, in particular, a blow-moulded plastics material. The additional attachment means (20) may also be formed in the same manner and from the same material. Typically, the frame of the bed (12), that is to say the upright frame members (14), the horizontal frame members (24) and the remaining frame portions that constitute the skeleton of the bed, are generally formed from metal. The side rails (16), further include a number of apertures (32) extending through the faces of the rails (16). Each side rail (16) is generally provided with a plurality of holes and in one particular embodiment of the present invention five vertical holes (32) are provided in the faces of the side rails (16) and along the length thereof.

[0066] In a further embodiment of the present invention, and with reference to Figures 4 - 5, a bed frame for a toddler bed (12) is provided including a bed base (30) for location of a mattress (36), a headboard (22) and a footboard (26). The headboard (22) is located in a position such that its lower edge (34) rests at substantially

the same height as the bed base (30). The footboard (26) may also be provided in such an arrangement. Thus, as opposed to traditional beds wherein the lower edge of the headboard may rest at the same height as the top of a mattress resting on a bed base, the bed (12) in accordance with an embodiment of the present invention includes a headboard (22) having a lower edge (34) resting at substantially the same height as the bed base (30). Such a structural improvement removes the need for additional safety bars and/or slats, often provided across and/or forming the bed base (30) to provide the required support, to be positioned across the width of the bed along the bed base, therefore increasing the ease of assembly of such a bed (12). The headboard (22) and footboard (26) are generally formed from a plastics material, in particular, a blow-moulded plastics material. Further, the blow-moulded plastics material has an interior in which additional formations are provided, in the form of internal ribs. The provision of such ribs is designed to provide additional rigidity and structural support to the blow-moulded headboard (22) and/or footboard (26). The bed base (30) of the present invention is provided as a fabric base. Typically, a mattress (36) for the bed (12) may be located on said fabric base (30). Thus, assembly of the bed frame is made significantly simpler by providing a fabric base for the bed (12), as opposed to a series of slats or struts that traditionally rest across the width of the bed frame.

[0067] The headboard (22) and footboard (26) of the bed (12) of the present invention also includes a fabric print (28) adhered to a face thereof. The fabric print (28) is adhered to a face of the headboard (22) or footboard (26) using an oil-based material and, in particular, is designed to adhere predominantly to the plastic or blow-moulded plastic material from which the headboard (22) and footboard (26) are formed. This enables a toddler as they begin to develop their own tastes and character, to have a bed (12) that is themed or depicts images of licensed characters and/or the like. The fabric print and oil-based adhesive of the present invention provides not only an aesthetic improvement to the existing means of providing a theme to and/or personalising a toddler bed, but also provides a structural and functional improvement to the toddler bed because the entire headboard (22) and/or footboard (26) is formed from a plastics material, in particular, a blow-moulded plastics material, which provides substantial support, as opposed to the headboards and footboards in the prior art, discussed above, comprising cardboard prints cut to shape and held in place by a plastic trim with screws.

[0068] Alternatively, the headboard (22) and/or footboard (26) may be formed so as to include a recess located on at least one of their faces. In the recess that is formed, a panel is located, which is formed from plastics material, wood, low density board, medium density fibre (MDF) and/or the like. Prior to location within the recess, a print design or image is applied to the panel by heat transfer and/or the like, depicting an image, character or

pattern suitable to the child's tastes. This alternative headboard (22) and/or footboard (26) maintains the substantial support provided for by the first embodiment because the entire headboard (22) and/or footboard (26) is still formed from a plastics material, in particular, a blow-moulded plastics material. Additional structural support is therefore provided by the presence of the MDF panels in the recesses; a further advantage over the prior art, discussed above.

[0069] The MDF panels are retained in the recesses by retaining means, which are, typically, in the form of a number of rivets, generally one-time fit plastic rivets. The recesses prevent the edge of the panels from being accessible.

[0070] Referring now to Figures 6a - 7b there is illustrated a headboard (22; Figures 6a - b) and a footboard (26; Figures 7a - c) for a bed. Attachment means (38, 40) are provided in the form of a pair of protrusions extending from the lower side end of the headboard (22) and the footboard (26), surrounding substantially the entire circumference of the upright frame member (14). As such, the protrusions (38, 40) are ring/doughnut-shaped. In order to enable secure attachment to the upright member (14), the protrusions include a pair of diametrically opposing apertures (42, 44). An elongate member, typically in the form of a screw, tack, nail and/or the like can be located through and between the pair of diametrically opposing apertures (42, 44). Attachment means (40) and corresponding apertures (44) are also shown in Figure 5, although attachment means (38) and corresponding apertures (42) are hidden from view. In addition, the upright frame member (14) comprises a corresponding pair of diametrically opposing apertures. Consequently, the screw, tack, nail and/or the like is located through and between the pairs of opposing apertures, in the upright frame member (14) and the protrusions (42, 44), securing the upright (14) to the headboard (22) and/or footboard (26).

[0071] Thus, the headboard (22) and/or footboard (26) of a bed (12) is securely attached to the upright frame members (14) of the bed (12) by means of a screw, tack, nail and/or the like inserted through corresponding opposing apertures located in both the attachment means (38, 40) associated with the headboard (22) and footboard (26) and the frame members (14). This provides a significant advantage over the prior art, affording the bed (12) improved stability and a more robust attachment means.

[0072] Referring now to Figures 8a - c, there is illustrated a connecting means (50) for a bed frame having three distinct portions (52, 54, 56). A first portion (52) is provided with a first diameter, which is less than that of a second, adjacent portion (54). The second portion (54) has two sides, the first of which is connected to the first portion (52). The second, opposing side of the second portion (54) defines a concave face (58). A third portion (56) extends outwardly from the face (58) of the second portion (54) and is provided with a diameter less than

that of the first portion (52). The connecting means (50) is provided generally with a circular cross-section about its longitudinal axis.

[0073] The connecting means is further provided with a shoulder (60) located about its circumference and between the first (52) and second (54) portions. The shoulder (60) is defined by the differing diameters of the respective portions (52, 54). The third portion (58) of the connecting means (50) is provided with an outward face (62), in which an aperture (64) is located. The aperture (62) extends a predetermined distance into the third portion (56) and may also be provided with a screw thread on its interior wall. The first portion (52) is provided with a pair of diametrically opposing apertures (66) for location of a bolt or screw therethrough.

[0074] The connecting means (50) in this particular embodiment is provided for use in securing together components of a bed frame, although it will be appreciated that the same can be used as a connecting device for a variety of framework components. As can be seen in Figures 9a - b, the connecting means (50) is located within frame components (14, 24) of a bed frame. When located in place, connecting side bar (24) to upright frame member (14), only the second portion (54) of the connecting means (50) remains visible in use. A first bolt or screw (68) is provided that is received through an aperture in the upright frame member (14) and securely locates within the aperture (64) of the third portion (56) of the connecting means (50), connecting the same together. A second bolt or screw (70) is received through diametrically opposing apertures in the side bar (24), which correspond to the apertures (66) located in the first portion (52) of the connecting means (50). Thus, the connecting means is securely connected to the side bar (24) and the framework of the bed is therefore also securely connected.

[0075] The shoulder (60) of the connecting means (50) allows the second portion (54) to rest on the end of the side bar (24) while the concave face (58) is profiled to match the profile of the upright frame member (14). The inward curve of the concave face (58) is located as near as possible to the shoulder (60), thereby allowing the connected frame components (14, 24) to be located as closely together as possible. This provides an important advantage in that not only are the respective frame components (14, 24) securely connected together, they are also located in close proximity such that the spacing between a cross bar frame member (72) and a head board (22) is kept to a minimum, in accordance with safety requirements discussed above.

Claims

1. A framework for a bed comprising one or more frame members and one or more side wall members attached thereto, said one or more side wall members including attachment means, wherein the attach-

- ment means form at least one protrusion from one of the one or more side wall members or the frame members, provided to substantially surround the perimeter of a portion of the other of the one or more frame members or the one or more side wall members.
2. A framework according to claim 1, wherein said attachment means comprise at least two protrusions.
 3. A framework according to claim 1, wherein the one or more frame members to which the one or more side wall members attach are upright frames formed at a corner of the bed.
 4. A framework according to claim 1, wherein said one or more side wall members include additional attachment means for attachment to a second frame member, said second frame member located perpendicular to a first frame member.
 5. A framework according to claim 1, wherein said one or more side wall members are formed from blow-moulded plastics material.
 6. A method of manufacturing a framework for a bed comprising attaching one or more frame members and one or more side wall members, providing one of said one or more side wall members or one or more frame members with attachment means, wherein forming the attachment means as at least one protrusion from the one or more side wall members or one or more frame members, such that said at least one protrusion substantially surrounds the perimeter of a portion of the other of the one or more frame members or side wall members.
 7. A bed frame according to claim 1 wherein the bed frame includes a bed base, for location of a mattress and/or the like, and a head and/or foot board, and said head and/or foot board is located in a position such that a lower edge of said headboard is positioned at substantially the same height as the bed base.
 8. A bed frame according to claim 7, wherein said head and/or foot board includes a fabric print adhered to a face thereof.
 9. A bedframe according to claim 1, wherein at least two elongate members extend between a head and a foot of the frame and are connected to respective vertical head and foot members by connecting means provided between ends of the elongate members and the head and foot of the frame.
 10. A frame according to claim 9, wherein the connecting means includes a first, substantially planar side and a second side formed to fit an outer profile of the head and/or foot member to which it connects.
 11. A frame according to claim 9, wherein the connecting means includes a shoulder located about at least part of its perimeter which rests substantially at the ends of said elongate members.
 12. A frame according to claim 11, wherein said connecting means has a first portion extending from the shoulder to a first side, having a diameter smaller than a diameter of a second portion of the connecting means extending between said shoulder and a second side said first portion locates within an end of the elongate member to which the connecting means attaches.
 13. A frame according to claim 12, wherein said connecting means is provided with a third portion with a diameter less than that of the first portion, said third portion extending outwardly from the second side of the connecting means.
 14. A frame according to claim 13, wherein an aperture is provided in an outward face of the third portion, said vertical head and/or foot members are provided with a first aperture, sized to receive said third portion of the connecting means therein, and a second, diametrically opposing aperture, sized to receive securing means which pass through the respective apertures.
 15. A frame according to claim 9, wherein said first portion of the connecting means is provided with a pair of diametrically opposing apertures and a corresponding pair of diametrically opposing apertures is located substantially at an end of the elongate members.
 16. A connecting means including: a first portion having a first diameter; a second portion located at an end of said first portion and having a second, larger diameter; said second portion having a concave face; and wherein a third portion extends outwardly from the face of said second portion and having a diameter less than or equal to that of the first portion.
 17. A connecting means according to claim 16, wherein the connecting means includes a shoulder, located about at least part of its perimeter and between said first and said second portions.
 18. A method of manufacturing a connecting means including forming a first portion having a first diameter; forming a second portion located at an end of said first portion and having a second, larger diameter; forming a concave face on said second portion; and wherein a third portion is formed which extends out-

wardly from the face of said second portion and has a diameter less than or equal to that of the first portion.

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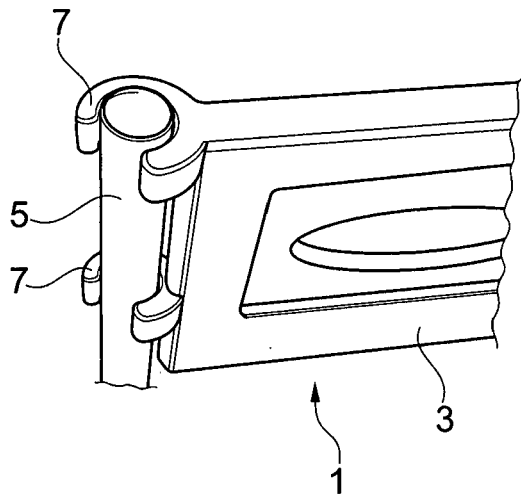


Fig. 1a

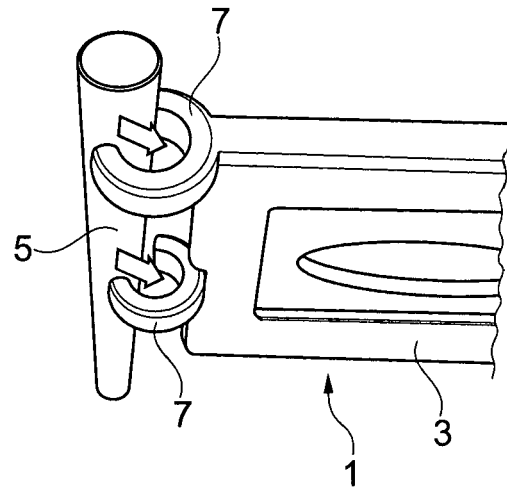


Fig. 1b

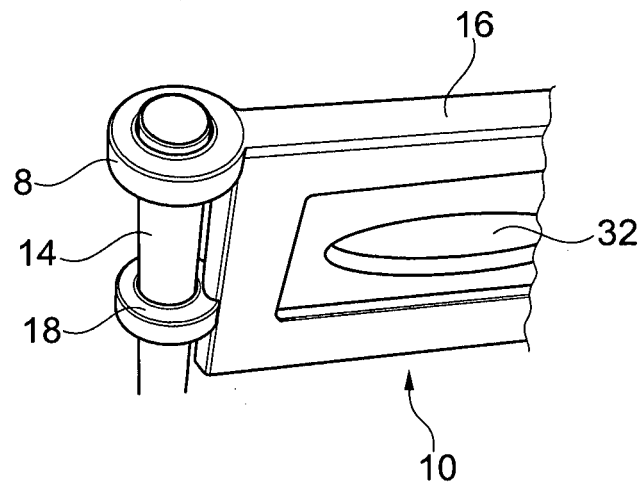


Fig. 2

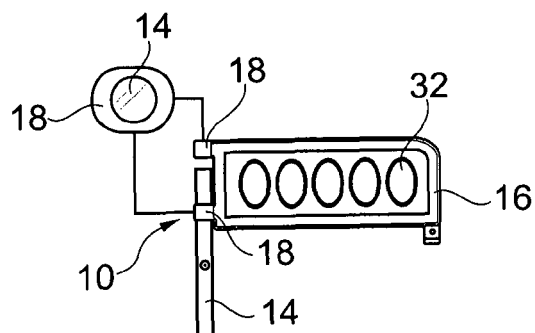


Fig. 3

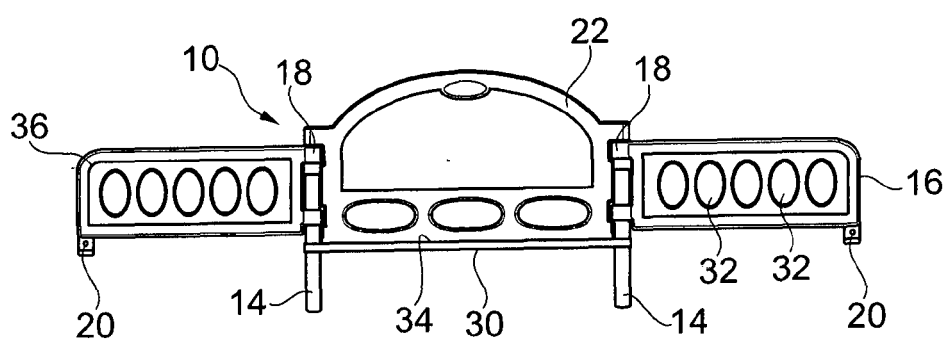


Fig. 4

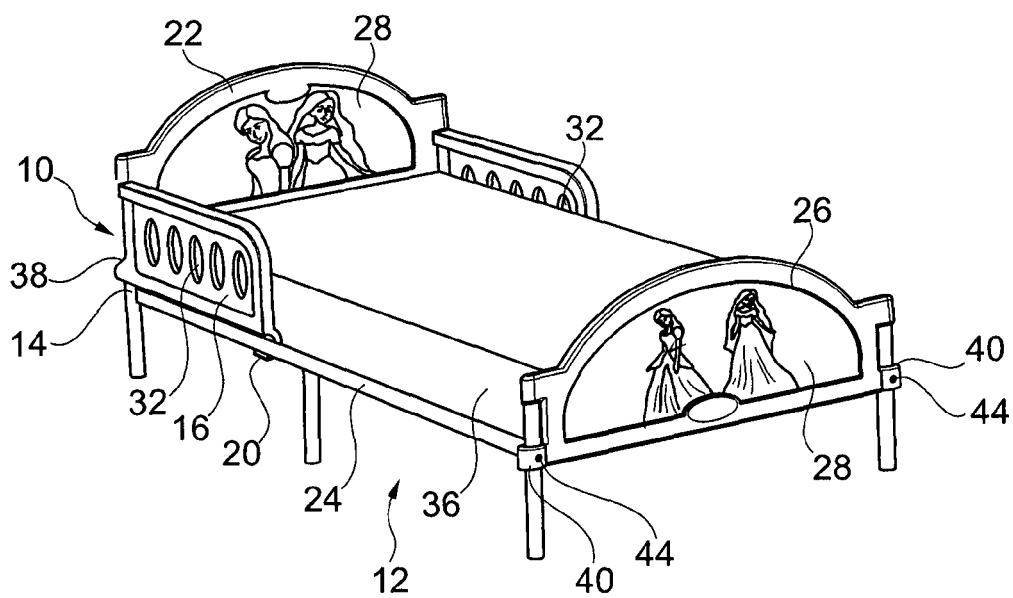


Fig. 5

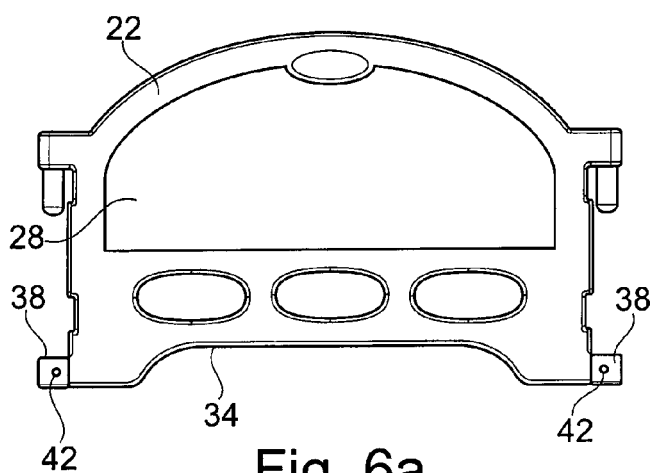


Fig. 6a

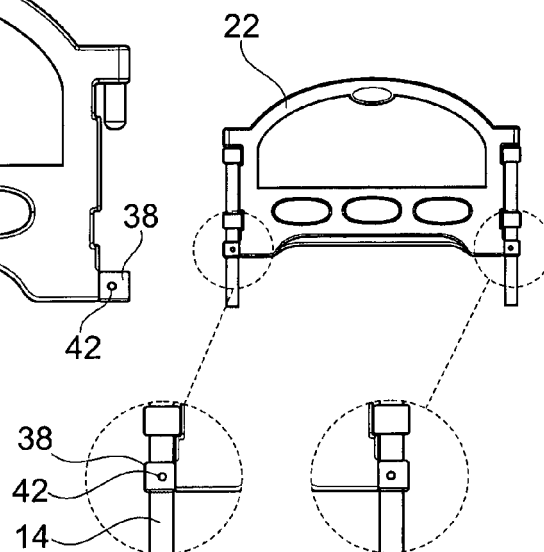


Fig. 6b

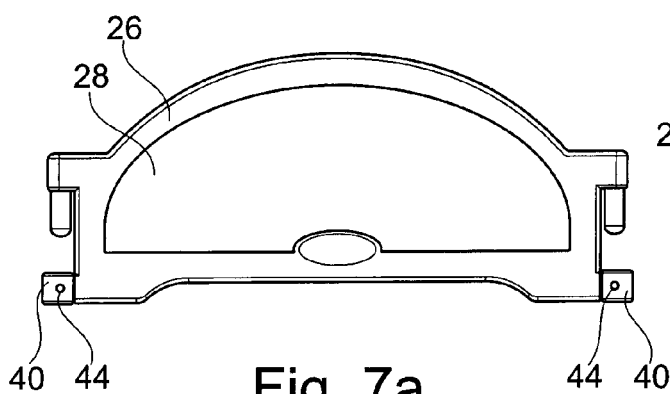


Fig. 7a

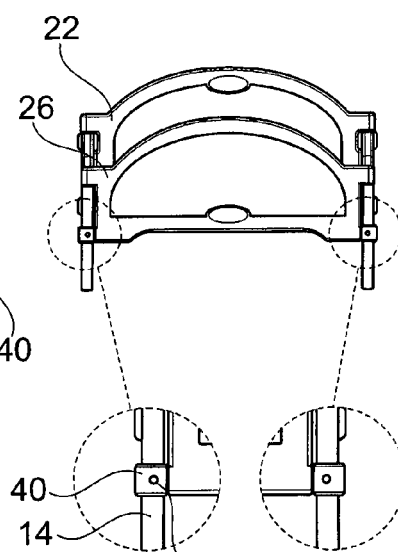


Fig. 7b

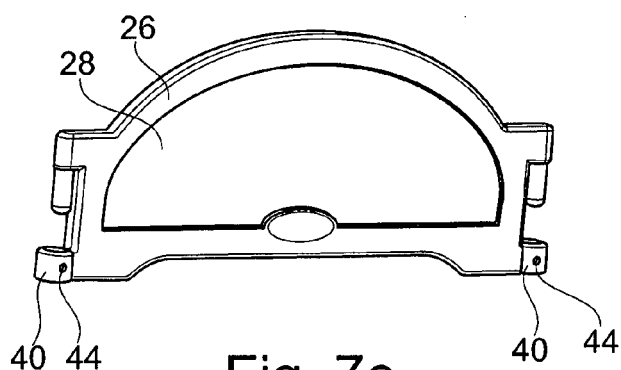


Fig. 7c

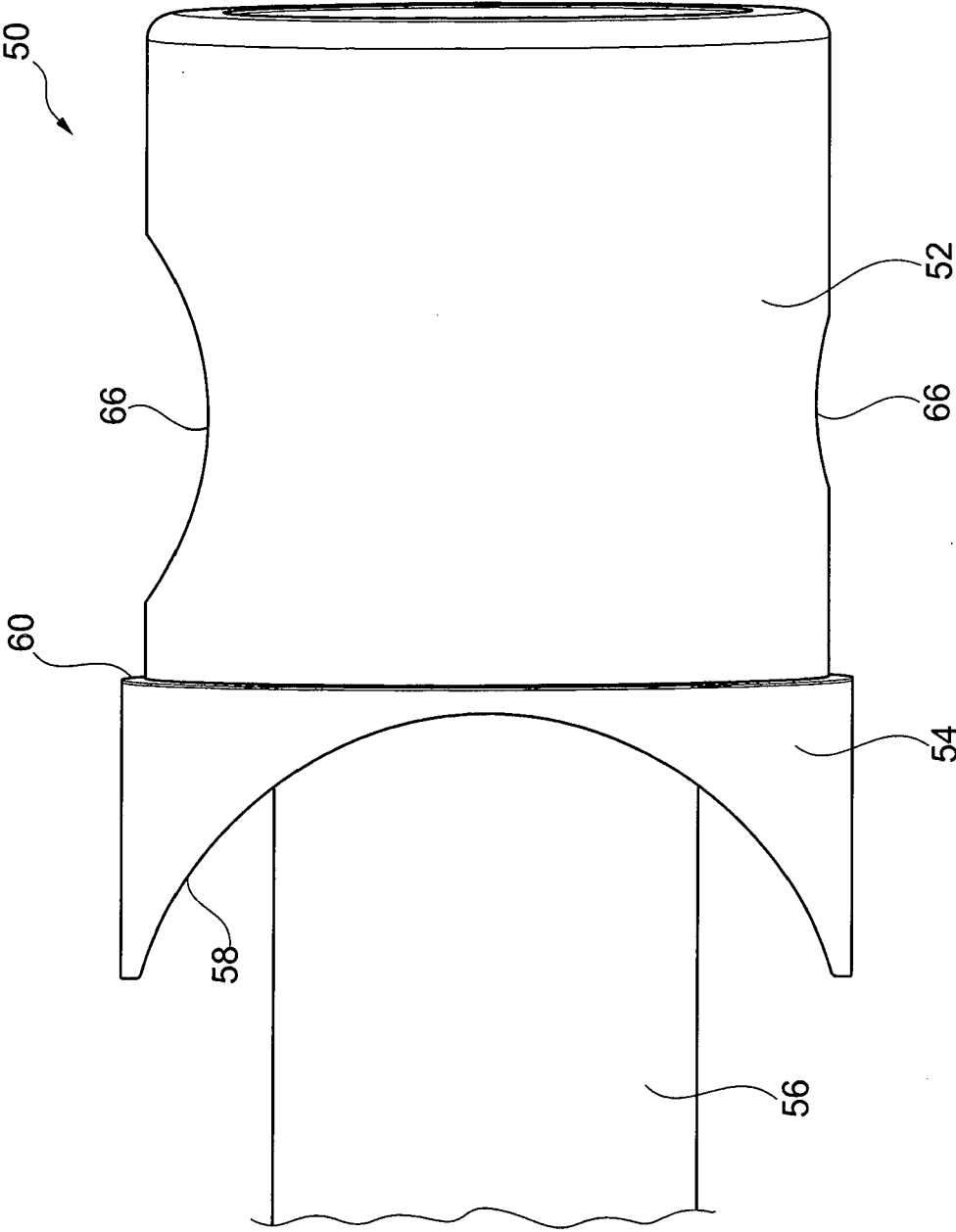


Fig. 8a

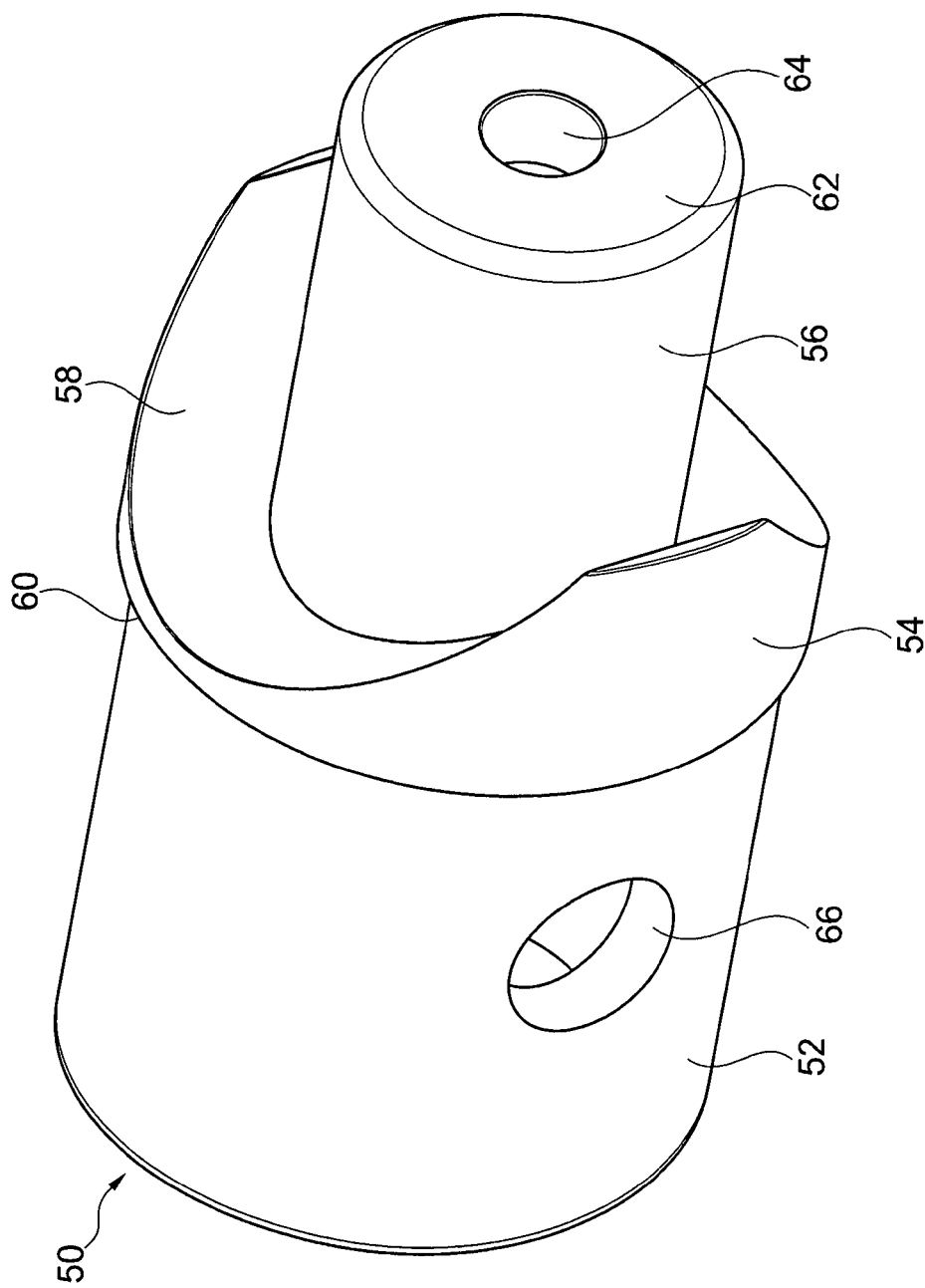


Fig. 8b

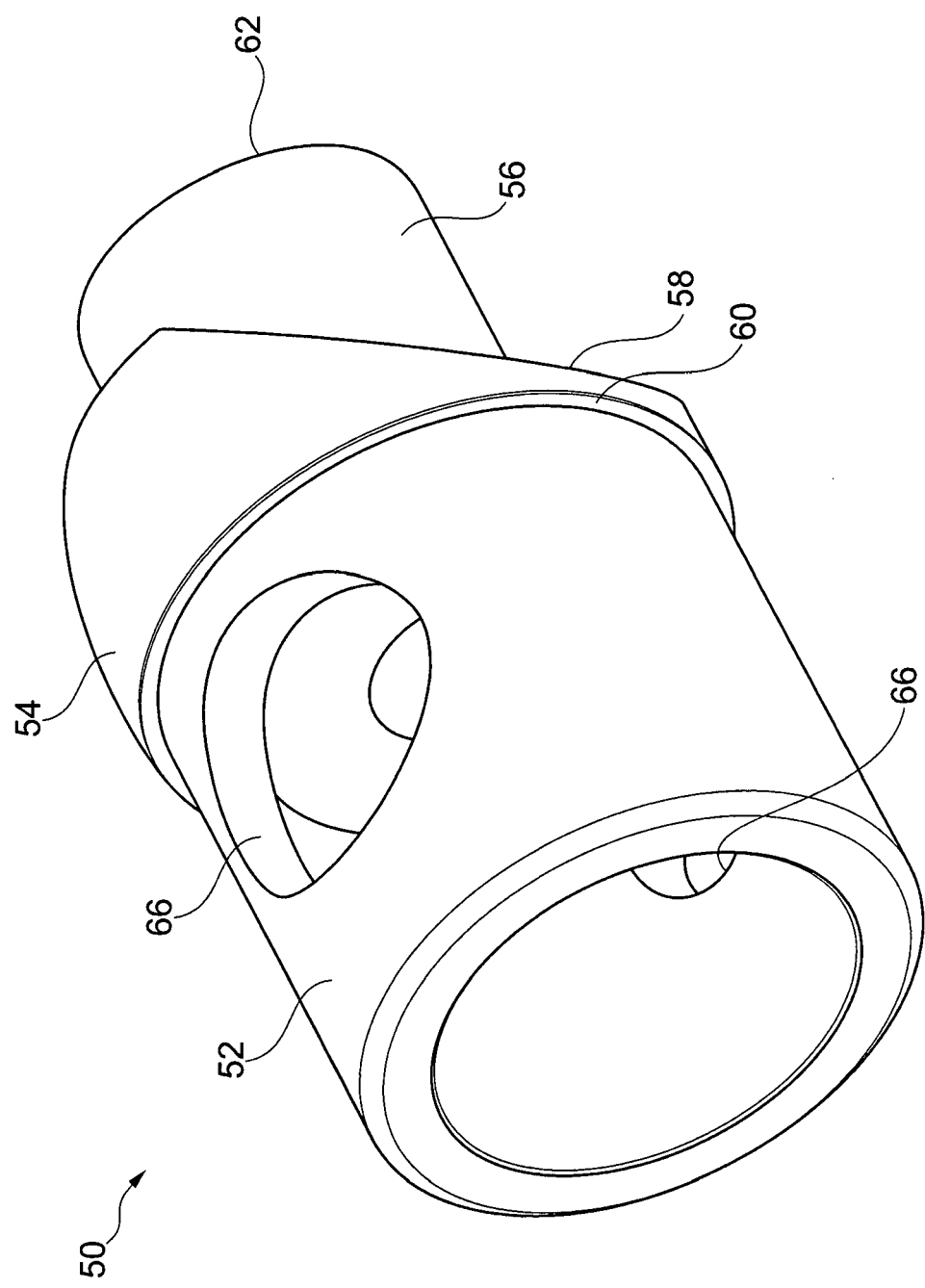


Fig. 8c

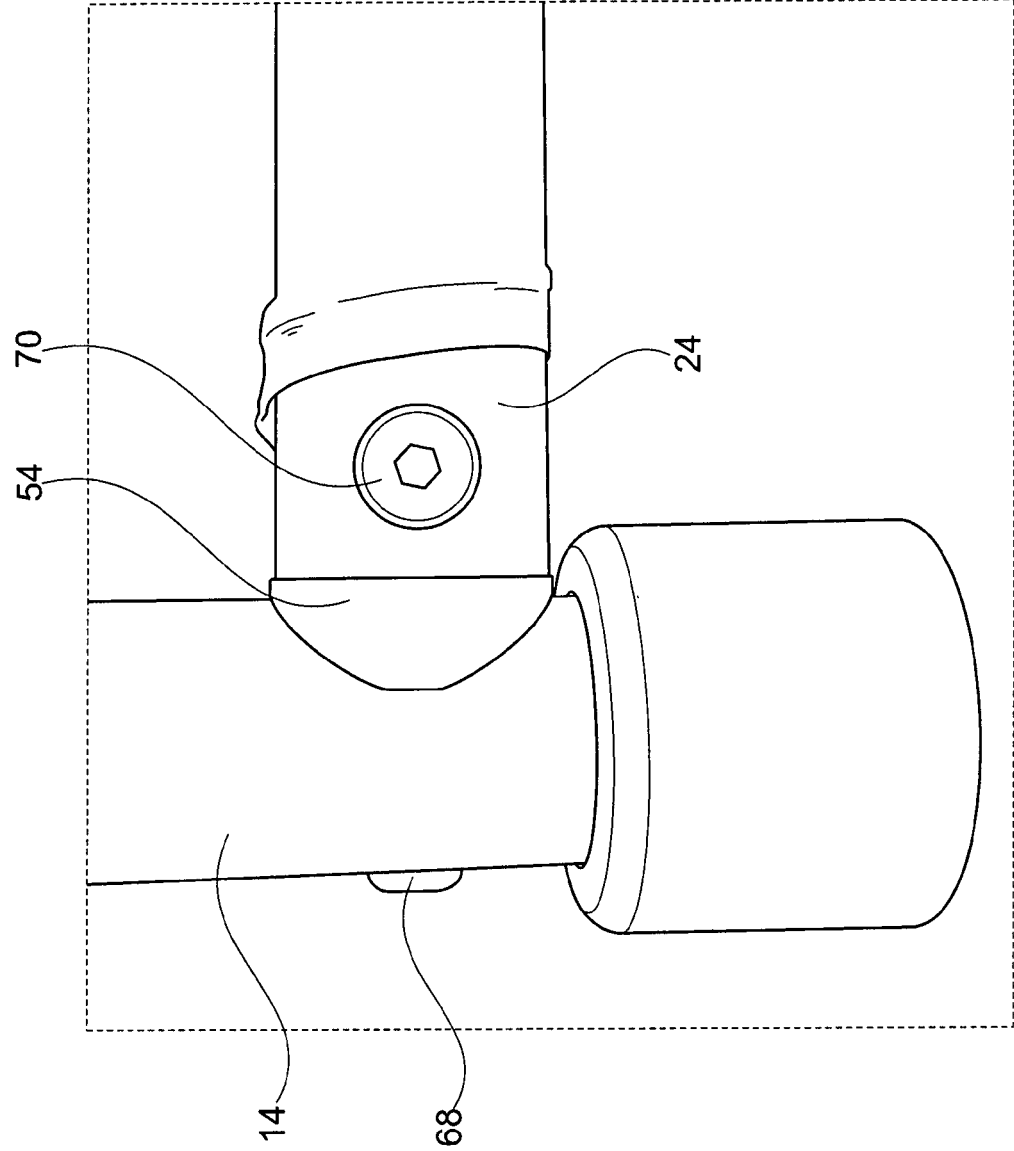


Fig. 9a

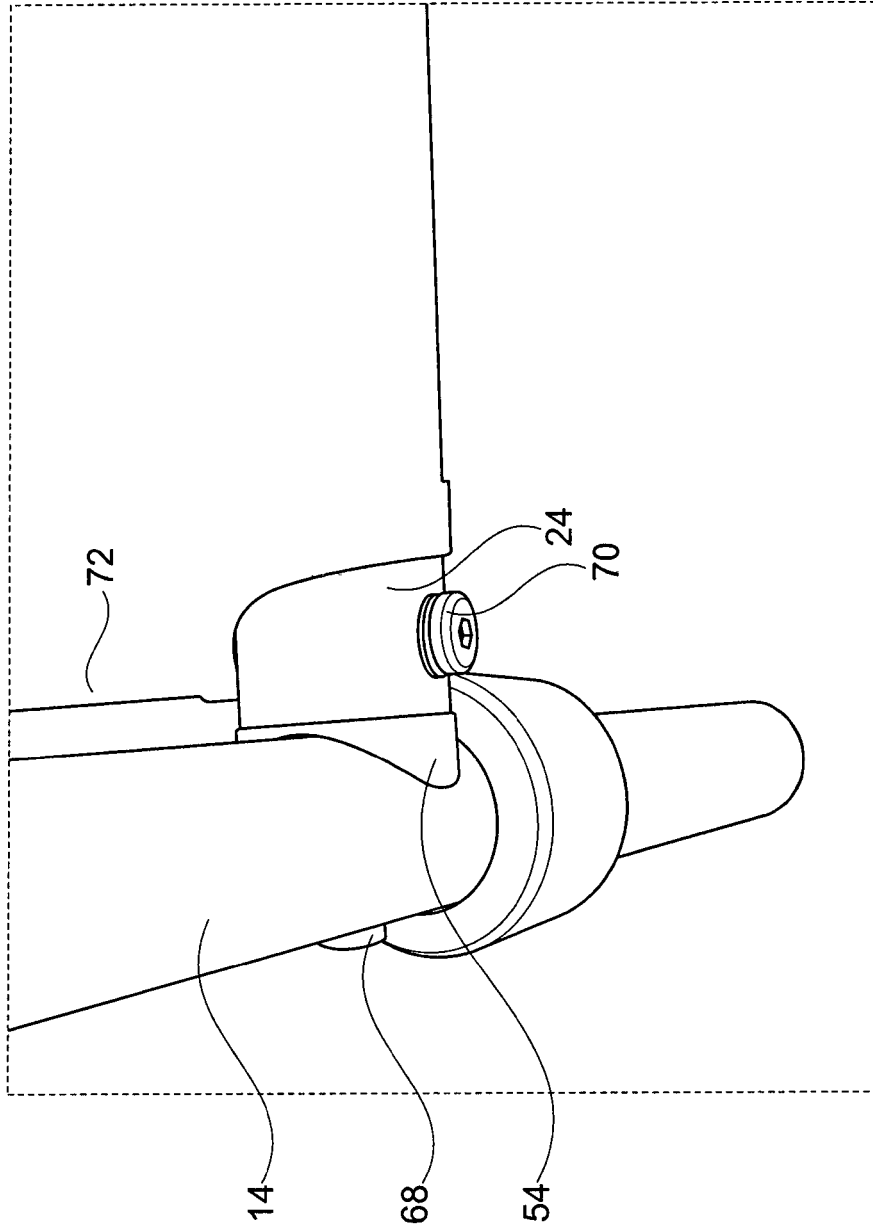


Fig. 9b

**PARTIAL EUROPEAN SEARCH REPORT**

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 14 19 1121

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2008/184485 A1 (SHAMIE SAM I [US] ET AL) 7 August 2008 (2008-08-07)	1-12	INV. A47C21/08 A47D7/01 A47D11/00 A47D15/00 A47D7/00
Y	* paragraph [0051] - paragraph [0063]; figures 2-5 *	13-15	
X	US 2 779 953 A (THOMPSON LEE W ET AL) 5 February 1957 (1957-02-05)	1-4,6-12	
Y	* column 2, line 6 - column 4, line 10; figures 1-4 *	13-15	
X	US 2 164 484 A (WOLFE JOSEPH A) 4 July 1939 (1939-07-04)	1-7,9-12	
Y	* page 1, line 36 - page 2, line 8; figures 1-4 *	13-15	TECHNICAL FIELDS SEARCHED (IPC) A47C A47D F16B A61G
X	US 6 099 377 A (PRIDEMORE JACQUELINE S [US]) 8 August 2000 (2000-08-08)	1-8	
Y	* column 3, line 58 - column 4, line 33; figures 1-4 *	13-15	
Y	US 6 227 752 B1 (FRIEDRICH PAUL [US]) 8 May 2001 (2001-05-08)		
	* column 4, line 1 - line 44; figures 1-6 * ----- -/--		

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

Place of search

The Hague

Date of completion of the search

17 April 2015

Examiner

Kus, Slawomir

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document



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EPO FORM 1503 03.82 (P04C10) 1

**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 14 19 1121

Claim(s) completely searchable:
1-15

Claim(s) not searched:
16-18

Reason for the limitation of the search:

1.0. Incomplete Search under Rule 62a EPC1.1. Under Article 84 in combination with Rule 43(2) EPC, an application may contain more than one independent claim in a particular category only if the subject-matter claimed falls within one or more of the exceptional situations set out in paragraph (a), (b) or (c) of Rule 43(2) EPC. This is not the case in the present application.

1.2. The search has been restricted to claims 1-15 indicated by the applicant in his telefax of 10.03.2015 filed in reply to the invitation pursuant to Rule 62a(1) EPC. Therefore, in accordance with Rule 62a(1) EPC, the search has been carried out on the basis of the independent apparatus claim 1 and independent method claim 6.

1.3. The claims must be amended in such way as to remove the unsearched subject-matter and the description must be adopted accordingly.

In addition, the amendments may not relate to subject-matter that was excluded from the search following an invitation under Rule 62a(1) EPC.

1.4. The subject-matter to be excised may be made the subject of one or more divisional applications. The divisional applications must be filed with the European Patent Office in Munich, The Hague or Berlin and shall be in the language of the proceedings relating to the present application (cf. Article 76(1) and Rule 36(2) EPC). The time limit for filing divisional applications (Rule 36(1) EPC) must be observed.

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 14 19 1121

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

17-04-2015

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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US 2779953 A	05-02-1957	NONE	
US 2164484 A	04-07-1939	NONE	
US 6099377 A	08-08-2000	NONE	
US 6227752 B1	08-05-2001	US 6227752 B1 WO 02090784 A1	08-05-2001 14-11-2002
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