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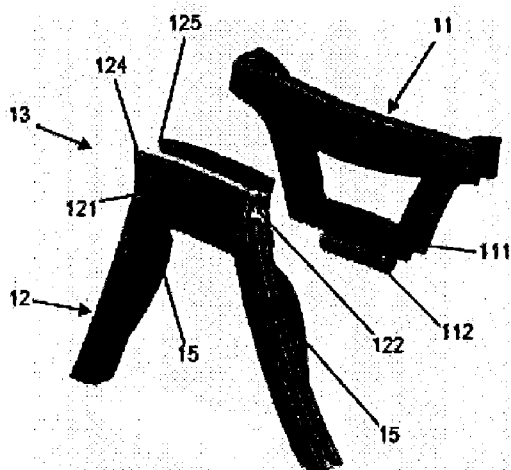


FIGURE 2A

(57) Abstract: The invention is broadly directed to an eye-
glass assembly comprising a frame configured to receive two
lenses and comprises a bridge region detachably connecting
an upper bridge part to a lower bridge part. The upper and
lower bridge parts comprise interlocking portions configured
to connect and/or disconnect by sliding the bridge parts rela-
tive to each other in a direction generally parallel to the inter-
face between them or in a non-vertical direction, the inter-
locking portions extending no more than the width of the
bridge portion. Two temple arms are pivotally attached to the
frame.



EYEGLOSS BRIDGE ASSEMBLY

Field of Invention

- 5 This invention relates to an eyeglass bridge assembly. More particularly, this invention relates to an eyeglass bridge in which upper and lower eyeglass frame parts can be separated.

Background to the Invention

10

A huge number of the world's population wears eyeglasses in some form. The term "eyeglasses" generally refers to a device in which lenses are worn in front of the eyes, including but not limited to: spectacles for vision correction; sunglasses for solar protection and safety glasses for eye protection.

15

Eyeglasses generally comprise a frame for bearing the optically transparent lenses and positioning them appropriately in front of the eyes of the wearer. The frame of eyeglasses generally comprises at least some of the following components: rims to which the lenses are attached; arms or temples which are placed over the ears of the wearer; and a bridge which connects the rims or the two lenses together and typically rests on the nose of a wearer.

20

Eyeglasses have evolved over the years from being a purely functional item to being a fashion accessory. The style of eyeglasses has evolved accordingly, in terms of their shape, size and colour. Nowadays, people often desire to have more than one pair of eyeglasses to suit use in different situations, to complement different outfits or simply for the sake of variety. However, the high price of eyeglasses prevents this being a practicable option for many people.

25

- 30 One way in which the style of eyeglasses can be varied relatively cheaply is with interchangeable parts. Interchangeable parts are able to be disconnected from other eyeglass parts in order to be interchanged for corresponding parts. For parts to be easily interchanged it is desirable for them to be disconnected easily, for example without great effort or the need to use tools. However at the same time,

there is a need for disconnectable parts to be sufficiently difficult to disconnect that they do not unintentionally come apart during normal use.

5 The balance between ease and security of a connection between eyeglass parts is not only important in the example of eyeglasses with interchangeable parts. All eyeglasses are assembled from constituent parts and it is desirable to reduce complexity in the manufacture / assembly process to reduce costs.

10 It may be desirable for eyeglasses to be comprised of separate upper and lower frame parts that are able to be connected and disconnected at the bridge. Non-limiting examples include:

- so that upper and lower frame parts can be interchanged with other frame parts to vary the style and size of the eyeglasses;
- to increase efficiencies in the manufacturing process, for example where the
15 same upper frame parts are used in multiple frame models and where the lower frame part differs between models (or where the same lower frame parts are used in multiple frame models); or
- to separate upper and lower frame parts to remove or interchange lenses.

20 The UK patent application published as GB 2199155 discloses a number of arrangements of eyeglasses by which the eyeglass frames can be manipulated to allow for the lenses to be removed. In the embodiment shown in Figure 2 of GB 2199155 the frames are divided into upper and lower parts that are connected by inserting a knob into an accommodating hole. One drawback with this arrangement
25 is that the upper and lower frame parts may disconnect too easily, particularly after extended use has loosened the fitting of the knob in the hole.

Figure 5 of GB 2199155 shows an alternative arrangement where an upper frame part B slides onto side portions and a bridge portion of a lower frame part and
30 spans the width of the eyeglasses. One drawback with this arrangement is that the degree of stylisation possible is limited as the upper frame part mates in sliding co-operation with both the side and bridge portions of the lower frame part. Furthermore, the position of the temple arms is limited to being below the level of the upper frame part.

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Object of the Invention

It is an object of the invention to provide an improved eyeglass bridge assembly. Alternatively, it is an object to provide an eyeglass bridge assembly that addresses
5 at least some of the problems with the prior art. Alternatively, it is an object of the invention to at least provide the public with a useful choice.

Summary of the Invention

10 According to a first aspect of the invention, there is provided an eyeglass assembly comprising:

a frame configured to receive two lenses and comprising a bridge region;

and

two temple arms pivotally attached to the frame,

15 wherein the bridge region comprises upper and lower bridge parts connected along an interface by interlocking portions configured to connect and/or disconnect by sliding the bridge parts relative to each other in a direction generally parallel to the interface,

wherein the interlocking portions extend no more than the width of the
20 bridge portion.

In a first embodiment of the invention, the upper bridge part comprises a male interlocking portion and the lower bridge part comprises a female interlocking
25 portion.

Preferably, the upper bridge part comprises a crossbar portion and the male interlocking portion extends outwards from the crossbar portion. More preferably, the male interlocking portion extends outwards from the underside of the crossbar
30 portion.

In a second, alternative embodiment of the invention, the upper bridge part comprises the female interlocking portion and the lower bridge part comprises the male interlocking portion.

In either of the first or second embodiments of the invention, the male and female interlocking portions are preferably elongate. More preferably, the male and female interlocking portions are elongate longitudinally with respect to the frame.

- 5 Preferably, the male interlocking portion comprises a neck portion connected to the respective bridge part, the neck portion being connected to a body portion, the body portion having a greater width than the neck portion.

- 10 In one embodiment of the invention, the interlocking portions of the upper and lower bridge parts define a sliding dovetail-like joint. A 'dovetail-like joint' will be understood to be a joint that interconnects in the same way as a dovetail, although the shape of the interlocking parts can have a shape other than dovetails.

- 15 Preferably, the frame is comprised of upper and lower frame parts comprising the upper and lower bridge parts respectively, the upper and lower frame parts comprising means for connecting together at their outer edges. More preferably the upper and lower frame parts connect at their outer edges via a different connection mechanism from the bridge connection mechanism. More preferably, the outer edge connection mechanisms comprise co-operating male and female members.

- 20 According to a second aspect of the invention there is provided a pair of eyeglasses comprising a bridge assembly comprised of separable upper and lower bridge parts, the upper and lower bridge parts being connected by means of an interlocking mechanism and able to be separated by sliding the upper and lower
25 bridge parts relative to each other in a direction generally parallel to an interface between bridge parts by a relative movement through a distance no greater than the width of the bridge assembly.

- 30 According to a third aspect of the invention, there is provided an eyeglass assembly comprising:

- a frame configured to receive two lenses and comprising a bridge region;
- and
- two temple arms pivotally attached to the frame,
- wherein the bridge region comprises upper and lower bridge parts
- 35 connected by interlocking portions configured to connect and/or disconnect by sliding the bridge parts relative to each other in a non-vertical direction,

wherein the interlocking portions extend no more than the width of the bridge portion.

5 According to a fourth aspect of the invention there is provided an eyeglass bridge assembly comprising an upper bridge part and a lower bridge part, the upper and lower bridge part being connected along an interface by interlocking portions configured to connect and/or disconnect by sliding the bridge parts relative to each other in a direction generally parallel to the interface, wherein the interlocking portions extend no more than the width of the bridge portion.

10

According to a fifth aspect of the invention there is provided an eyeglass bridge assembly comprising separable upper and lower bridge parts, the upper and lower bridge parts being connected by means of an interlocking mechanism and able to be separated by sliding the upper and lower bridge parts relative to each other in a direction generally parallel to an interface between bridge parts by a relative movement through a distance no greater than the width of the bridge assembly.

15

According to a sixth aspect of the invention there is provided an eyeglass bridge assembly comprising an upper bridge part and a lower bridge part, the upper and lower bridge part being connected by interlocking portions configured to connect and/or disconnect by sliding the bridge parts relative to each other in a non-vertical direction, wherein the interlocking portions extend no more than the width of the bridge portion.

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25 Reference to relative positional terms such as "vertical", "above", "under" or the like when used in this specification should be understood to refer to the eyeglass assembly in a normal orientation when positioned on a wearer's face. That is, a position in which the upper bridge part is positioned generally vertically above the lower bridge part, and the temple arms are generally horizontal. Such terms are not limiting to the invention if the eyeglass assembly is placed in a different position.

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Further aspects of the invention, which should be considered in all its novel aspects, will become apparent to those skilled in the art upon reading of the following description which provides at least one example of a practical application of the invention.

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Brief Description of the Drawings

One or more embodiments of the invention will be described below by way of example only, and without intending to be limiting, with reference to the following
5 drawings, in which:

- Figure 1 is a perspective view illustration of an eyeglass assembly according to an embodiment of the invention.
- 10 Figure 2 is a series of perspective view illustrations of the central regions of two components of the eyeglass assembly illustrated in Figure 1.
- Figure 3 is a perspective view illustration of the interface between the two components of an eyeglass assembly illustrated in Figures 1 and 2.
- 15 Figure 4 is a perspective view illustration of a component of an eyeglass assembly according to another embodiment of the invention.
- Figure 5 is a perspective view illustration of another component of an
20 eyeglass assembly according to an embodiment shown in Figure 4.

Detailed Description of Preferred Embodiments of the Invention

The invention is broadly directed to an eyeglass assembly comprising a frame
25 configured to receive two lenses and comprises a bridge region detachably connecting an upper bridge part to a lower bridge part. The upper and lower bridge parts comprise interlocking portions configured to connect and/or disconnect by sliding the bridge parts relative to each other in a direction generally parallel to the interface between them or in a non-vertical direction, the interlocking portions
30 extending no more than the width of the bridge portion. Two temple arms are pivotally attached to the frame.

First Embodiment of the Invention

Figure 1 is a perspective view illustration of eyeglasses 100 according to an embodiment of the invention. Eyeglasses 100 are comprised of frame 10, temple arms 20 and lens regions 30.

5 Frame 10 in this embodiment is comprised of upper frame part 11 and lower frame part 12. Upper frame part 11 forms an upper portion of the frame 10 of eyeglasses 100 and, in preferred embodiments such as that shown in Figure 1, spans the width of the front section of eyeglasses 100. Lower frame part 12 forms a lower portion of the frame 10 of eyeglasses 100 and also, in preferred embodiments spans the
10 width of the front section of eyeglasses 100.

Upper and lower frame parts 11 and 12 are detachably attached to each other at either end at frame hinges 14 where they attach to temple arms 20 and also at a centre portion where, in the embodiment shown in Figure 1, they together form a
15 bridge portion 13.

Figure 2 shows perspective view illustrations A) to C) of the bridge region of upper frame part 11 and lower frame part 12 in different positions of assembly according to the embodiment of the invention illustrated in Figure 1. Figure 3 shows a close
20 up perspective view illustration of the interface between upper frame part 11 and lower frame part 12 according to the embodiment of the invention illustrated in Figures 1 and 2.

Referring to Figure 2, upper frame part 11 comprises upper bridge part 111, which
25 comprises upper and lower crossbars spanning between the two lens-receiving sides of the upper frame part. In the context of this specification, the term "crossbar" will be generally understood to mean any portion of the frame or a frame part that extends generally laterally and at least partially in a horizontal direction, particularly at the bridge portion where the two sides of the eyeglass frame are
30 connected. A crossbar in an eyeglass assembly may take any appropriate form and may be integrally connected to another part of the eyeglass assembly.

Upper bridge part 111 comprises male interlocking portion 112, which in this embodiment is substantially elongate and cylindrical in a direction substantially
35 longitudinal with upper frame part 11. Referring to Figure 3, male interlocking portion 112 extends downwardly from the lower crossbar of upper bridge part 111,

and comprises a neck portion 113 proximate the lower crossbar of the upper bridge part joining to a body portion. The body portion has a greater width than the neck portion 113.

5 Referring again to Figure 2, lower frame part 12 comprises lower bridge part 121, which comprises a crossbar spanning between the two lens-receiving sides of the lower frame part. Lower bridge part 121 comprises female interlocking portion 122, which in this embodiment is a channel formed in lower bridge part 121 configured to receive male interlocking portion 112. As can be seen more clearly in Figure 3,
10 female interlocking portion 122 comprises a substantially cylindrically shaped channel in the lower bridge part crossbar with an axis oriented in the substantially longitudinal direction of lower frame part 12. Female interlocking portion 122 comprises an upper opening 123 configured to accept the neck portion 113 of male interlocking portion 112.

15 Figure 2A shows the upper bridge part 11 and lower bridge part 12 disassembled, but shows the orientation required to begin the assembly process. Firstly, the axis of male interlocking portion 112 is aligned with the axis of female interlocking portion 122. Secondly, neck portion 113 (shown in detail in Figure 3) of male interlocking portion 112 is aligned with the upper opening 123 (also shown in detail in Figure 3) above the channel formed by female interlocking portion 122. Upper
20 frame part 11 and lower frame part 12 then slide relative to each other, in a horizontal direction, while maintaining the alignment of the axis of male interlocking portion 112 and the axis of female interlocking portion 122. Figure 2B shows the assembly process partly complete, and Figure 2C shows the upper frame part 11
25 and lower frame part 12 in their assembled state.

The slideably detachable interface between upper and lower frame parts in the embodiment of Figures 1-3 is confined to the bridge region of the eyeglass
30 assembly. That is, the interlocking portions extend no more than the width of the bridge region. Also, the relative movement between upper and lower frame parts 11 and 12 required to detach one from the other is of a distance substantially no greater than the width of the bridge. This enables the bridge parts to be quickly and easily detached, and the structure of the eyeglass assembly outside the bridge
35 region can take any form.

In the embodiment of Figures 1-3, one end of the female interlocking channel 122 is open, and the opposite end is closed. This is advantageous in preventing the male interlocking portion 112 from sliding too far relative to female interlocking portion 122 and protruding from the opposite end from which it entered. The upper and lower bridge parts can therefore be easily aligned.

Lower bridge part 121 comprises front cover 124 and back cover 125. Front cover 124 and back cover 125 serve multiple purposes including providing strength to the bridge connection and protecting the interface between upper bridge part 111 and lower bridge part 121, as well as contributing to the aesthetic style of the eyeglasses. In other embodiments one or both of the front cover 124 and back cover 125 may not be present, may take different shapes or may be adapted for additional or different functions to each other or the present configuration.

Referring again to Figure 1, temple arms 20 each comprise an elongate portion 21, ear engaging portion 22, and temple arm hinge 24. Frame hinge 14 pivotally attaches to temple arm hinge 24 so that the temple arms 20 can pivot relative to frame 10 between open and closed positions.

Lower frame part 12 also includes nose pads 15 which in use rest on the wearer's nose and may increase comfort. Nose pads 15 are in this embodiment integrally formed as part of lower frame part 12. Any means of incorporating nose pads within eyeglasses 100 are within the scope of the invention. For example in some embodiments the nose pads may comprise multiple discrete parts, such as pads mounted to projecting members which themselves are mounted to the frame, or pads mounted to the frame itself. The nose pads may be removable, and may be pivotable or otherwise adjustable.

In this embodiment the hinge assemblies take the form of those described in the applicant's earlier patent applications WO 2011/149364 and WO 2012/074414, which are incorporated herein by reference. The upper and lower frame parts 11 and 12 connect together at their outer edges.

In some embodiments the frame parts connect together at their outer edges (i.e. at or proximate the hinge assembly) via a different connection mechanism from the bridge connection mechanism. For example the outer edge connection mechanism

in the embodiment of Figure 1 comprises co-operating male and female members, the male member being inserted vertically downwards into the female member. As described in WO 2011/149364, the male member may form the pivot pin to which the temple arm is pivotally attached. The present invention is not limited by the type of hinge assembly used to attach the temple arm to the frame and alternative
5 embodiments may comprise other types of assembly.

In the embodiment of Figure 1, lens regions 30 may comprise empty regions able to contain lenses, the lenses themselves or both the lenses themselves and the
10 regions they occupy.

Second Embodiment of the Invention

Figure 4 shows a close up perspective view illustration of an upper frame part 411 at a bridge region 413 of an eyeglass assembly according to an alternative
15 embodiment of the invention. Figure 5 shows a close up perspective view illustration of a lower frame part 412 at the bridge portion 413 of the embodiment of the invention illustrated in Figure 4.

Referring to Figure 4, upper frame part 411 comprises upper bridge part 131. Upper bridge part 131 comprises projections forming a female interlocking portion 132, which in this embodiment is a channel formed in upper bridge part 131 configured to receive a corresponding male interlocking portion 136 (shown in Figure 5). The male interlocking portion 136 is comprised as part of lower bridge part 135, which is part of lower frame part 412. The male interlocking portion 136
25 has a dovetail shape. A dovetail shape may resemble approximately a trapezoid. The dovetail shape of male interlocking portion 136 may be symmetrical about an axis intersecting and perpendicular to the parallel edges. Female interlocking portion 132 comprises entrance channel 133 and end face 134. Male interlocking part 136 comprises first end 137 and second end 138.
30

With reference to both Figures 4 and 5, upper frame part 11 and lower frame part 12 can be joined by aligning entrance 133 of female interlocking portion 132 with first end 137 of male interlocking portion 136. Upper frame part 11 and lower frame part 12 can then slide relative to each other along the longitudinal axis of male interlocking portion 136 such that male interlocking portion 136 is inside female
35

interlocking portion 132, and the second end 138 of male interlocking portion 136 abuts end face 134 of female interlocking portion 132. The sliding motion between the upper and lower bridge parts to lock or unlock the connection between them is generally horizontal and generally parallel to the interface between the upper and lower bridge parts. In this context, the interface will be understood to refer to the plane or line along which engaging surfaces of the upper and lower frame parts meet.

The female interlocking portion 132 may define a channel that slightly decreases in width from the open end 133 to the closed end face 134. This acts to secure the male interlocking portion 136 in locking engagement as the interlocking portions are pushed into position.

Further discussion of the invention including alternative embodiments

It should be understood that while, in the embodiment of Figure 1, the frame 100 is comprised of two parts, in other embodiments of the invention the frame may be comprised of only one part that is separable at the bridge. For example, in some embodiments the frame hinge portions do not separate and are integrally connected. In further embodiments the frame may comprise more than two parts, with any types of interfaces or connections located anywhere in the frame. One of the advantages of the present invention over the prior art is quicker and easier assembly and disassembly, and this advantage is still attained even if the frame comprises a single part with separable bridge parts that are each integrally formed with the frame. If the eyeglasses are made out of a suitably flexible material, the bridge region can be disassembled, quickly releasing the lenses without separating the rest of the eyeglasses assembly.

In some embodiments the frame 10 may be made of two or more parts, and the two or more parts may not contact each other except for at the bridge portion 13. In one such embodiment the lower frame part 12 may extend outwardly around each lens far enough that the lenses are securely held while the eyeglasses are assembled, but does not extend so far that it is joined to the outer edge of the upper frame part, for example proximate the hinges. In such an embodiment, one part of the hinge assembly may be formed completely from the upper frame part. In alternative embodiments, one part of the hinge assembly may be formed completely from the

lower frame part, and the upper frame part may not extend so far that it is joined to the outer edge of the lower frame part, for example proximate the hinges. The temple arm parts may be interchangeable in the same fashion as the other parts of the eyeglasses assembly.

5

The invention is not limited by the material or materials forming the parts of the eyeglass assembly. In different embodiments the frame and temple arms may all be formed of the same or different materials. The material used may be any suitable material, such as a plastics material, polymer, metal or combinations thereof. The material used may be chosen for hypoallergenic properties. By way of non-limiting example, the eyeglass assembly or parts thereof may be formed from materials such as cellulose acetate or similar, nylon, Monel, Flexon, titanium, beryllium, stainless steel, or aluminium. The material may have coatings, and may be of any colour or visual appearance. The frames may be manufactured by any method which in some embodiments may be injection moulding, casting, 3D printing or machining, and the manufacture method may include multiple processes for example to enhance surface finish.

In alternative embodiments the shape and configurations of the frame, lens regions and temple arms may differ substantially to allow for different styles as well as accommodate different face and head shapes and sizes. The lenses may fulfil any purpose. In some embodiments the lenses may be adapted to correct or otherwise improve the wearer's vision, in others they may be adapted to reflect or filter at least a portion of incident visible light or other radiation, in others they may be adapted to protect the wearer's eyes from physical objects or material and in others they may be adapted for no specific function. In some embodiments the optical, physical or functional properties of each lens may differ from one another, for example if a different amount of visual correction is required for each of the wearer's eyes. In some embodiments the lenses may be configured for 3D viewing, and may comprise filters such as opposite polarising filters.

The lenses may be made of any suitable material. In some embodiments the lenses may be glass or plastic, for example CR-39, polycarbonate, Trivex, or thiourethanes. There may be one or more coatings applied to the lenses, for example anti-reflective coatings, anti-UV coatings, hydrophobic, or scratch and smudge resistant coatings.

Eyeglasses 100 show only one particular embodiment of the invention, and as such there are features shown which may differ in terms of style, shape and other aesthetic or structural characteristics in alternative embodiments of the invention.

5 As one example, in Figure 1 the bridge region of the upper frame part 11 comprises an upper crossbar and two vertical elongate members connecting with a lower bridge crossbar. This arrangement may differ in other embodiments of the present invention, for example the space between the upper and lower crossbars of the upper bridge part may be formed of solid material, there may be no upper crossbar, 10 or there may be multiple cross bars, among many other possibilities. Similarly, it should be understood that other features and areas of eyeglasses 100 as shown in Figure 1 may differ substantially from the particular embodiment shown, for example in some embodiments the shape of the lens regions 30 may be rectangular or any other shape. Similarly, other embodiments of the invention may 15 include lower frame parts of different style, shape or form.

In the embodiment of Figures 1-3, the upper bridge part 111 comprises male interlocking portion 112, and lower bridge portion 121 comprises female interlocking part 122. In the embodiment of Figures 4 and 5, the male interlocking 20 portion is on the lower bridge portion of the eyeglasses while the female interlocking portion is on the lower bridge portion. It will be appreciated by the skilled addressee that, in other embodiments of the invention, the male and female interlocking parts may be interchanged from these embodiments. That is, the invention is not limited by which bridge part comprises which interlocking part.

25 Furthermore in other embodiments the shape of the interlocking portions may have differently shaped cross-sections from those of the embodiments described above. For example in some embodiments the male portion may comprise a projection having any prismic shape, a T-shape, L-shape or any other shape suited for 30 interlocking with a corresponding channel. For the projection to interlock with the channel it is received in, the body of the projection has a portion with a greater width than a neck of the projection.

In the embodiment of the invention shown in Figures 1-3, the male portion extends 35 downwardly from a crossbar of the upper bridge part into an upwardly facing channel of a female interlocking portion. More generally, the male interlocking

portion may extend outwardly in any direction from a part of the upper or lower bridge part, including outwardly behind, below, in front or to the side. For example, in the embodiment of Figures 4 and 5, the male interlocking portion extends rearwardly from the lower bridge part. The orientation of the female interlocking
5 portion is such so as to enable co-operation with the male interlock.

The interlocking portions may be disposed in any arrangement, and may slide relative to each other in any suitable direction. An interlocking arrangement between upper and lower bridge parts can be achieved when the direction of sliding
10 between the two bridge parts needed for engagement / disengagement is non-vertical, i.e. has a horizontal component. This includes sliding movements in any direction in the horizontal plane, including forwards and backwards from the point of view of a wearer of the eyeglasses (i.e. at 90° to the direction of sliding needed for the embodiment of Figures 1-3), or at an oblique angle to the horizontal.

15 In some embodiments it is only at the bridge region of the frame where there is a sliding interface, but in other embodiments there may be two or more interfaces at which there are corresponding interlocking parts which require sliding relative to each other for assembly.

20 In some embodiments the female interlocking portion may not comprise a channel, but instead may comprise a face matching the outer surface of the male interlocking part, as well as other features such as hooks which match the opposite side of the male interlocking portion but do not make contact with the full length of
25 the male interlocking portion.

While one end of the channel in female interlocking portion 122 in the embodiment of Figures 1-3 is closed to ensure correct alignment of the upper and lower bridge portions, in other embodiments both ends of female interlocking portion are open.
30 This allows the eyeglass frame to be assembled by inserting male interlocking portion into female interlocking portion from either side.

In some embodiments the male interlocking portion may not comprise a neck portion formed along its entire longitudinal length, and instead the male interlocking
35 portion may extend outwards in its longitudinal direction from the upper or lower bridge part to which it is attached. That is, the male interlocking portion may be

supported at only one end, for example as a pin. In such embodiments, the female interlocking portion comprises a corresponding hole in which the male interlocking portion can be inserted. The male and female interlocking portions may be arranged such that they can be engaged/disengaged by sliding along any non-
5 vertical angle, i.e. in a direction having a component in the horizontal plane of the eyeglasses.

In some embodiments the corresponding interlocking parts may comprise a tapered cross section. The taper allows a tighter fit to be achieved between the upper and
10 lower bridge parts when the bridge connection is assembled. Furthermore, a taper can be used to define a direction in which the two parts must be assembled, if such a restriction is desirable. In some embodiments the interlocking parts may comprise a different or additional means to hinder disassembly such as small raised bumps or similar in one or more of the interlocking parts, and may comprise corresponding
15 indentations in the corresponding interlocking parts. This provides the advantage of helping to prevent unintended disassembly of the eyeglass bridge assembly. In other embodiments, the bridge region comprises other means of preventing unintended disassembly.

20 Other features could be added to the interlocking portions and the eyeglass assembly without departing from the scope of the invention such as rounded inner or outer edges in the form of bevels, chamfers or fillets which allow for easier assembly and more resilient edges as well as adding style and an aesthetically pleasing appearance.

25 Embodiments of the invention enable eyeglasses to be quickly and conveniently assembled and disassembled at the bridge region without the need for small parts such as screws or tools such as screwdrivers. This is particularly useful for installing, removing or interchanging lenses since disconnecting the bridge enables
30 lenses to be removed or added. The convenience enables cost and time efficiencies in manufacturing, assembly and use of eyeglasses, amongst other advantages. An additional advantage is the ability for the wearer to interchange parts for aesthetic reasons, for example to use an upper frame part comprised of a different colour material than the lower frame part, or to use different coloured
35 temple arms to the frame.

Unless the context clearly requires otherwise, throughout the description and the claims, the words "comprise", "comprising", and the like, are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense, that is to say, in the sense of "including, but not limited to".

5

The entire disclosures of all applications, patents and publications cited above and below, if any, are herein incorporated by reference.

Reference to any prior art in this specification is not, and should not be taken as, an acknowledgement or any form of suggestion that that prior art forms part of the common general knowledge in the field of endeavour in any country in the world.

The invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, in any or all combinations of two or more of said parts, elements or features.

Where in the foregoing description reference has been made to integers or components having known equivalents thereof, those integers are herein incorporated as if individually set forth.

It should be noted that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications may be made without departing from the spirit and scope of the invention and without diminishing its attendant advantages. It is therefore intended that such changes and modifications be included within the present invention.

Claims

1. An eyeglass assembly comprising:
a frame configured to receive two lenses and comprising a bridge
5 region; and
two temple arms pivotally attached to the frame,
wherein the bridge region comprises upper and lower bridge parts
connected along an interface by interlocking portions configured to connect
and/or disconnect by sliding the bridge parts relative to each other in a
10 direction generally parallel to the interface,
wherein the interlocking portions extend no more than the width of
the bridge portion.
2. An eyeglass assembly as claimed in claim 1, wherein the upper bridge part
15 comprises a male interlocking portion and the lower bridge part comprises a
female interlocking portion.
3. An eyeglass assembly as claimed in claim 2, wherein the upper bridge part
comprises a crossbar portion and the male interlocking portion extends
20 outwards from the crossbar portion.
4. An eyeglass assembly as claimed in claim 2 or 3, wherein the male
interlocking portion extends outwards from the underside of the crossbar
portion.
25
5. An eyeglass assembly as claimed in claim 1, wherein the upper bridge part
comprises a female interlocking portion and the lower bridge part comprises
a male interlocking portion.
- 30 6. An eyeglass assembly as claimed in any one of claims 2-5, wherein the
male and female interlocking portions are elongate.
7. An eyeglass assembly as claimed in claim 6, wherein the male and female
interlocking portions are elongate longitudinally with respect to the frame.
35

- 5 8. An eyeglass assembly as claimed in any one of claims 2-7, wherein the male interlocking portion comprises a neck portion connected to the respective bridge part, wherein the neck portion is connected to a body portion, and wherein the body portion has a greater width than the neck portion.
- 10 9. An eyeglass assembly according to claim 8, wherein the interlocking portions of the upper and lower bridge parts define a sliding dovetail-like joint.
- 15 10. An eyeglass assembly according to any one of the preceding claims, wherein the frame comprises upper and lower frame parts comprising the upper and lower bridge parts respectively, wherein the upper and lower frame parts comprise means for connecting together at their outer edges.
- 20 11. An eyeglass assembly according to claim 10, wherein the upper and lower frame parts connect at their outer edges via a different connection mechanism from the bridge connection mechanism.
- 25 12. An eyeglass assembly according to claim 10 or 11, wherein the outer edge connection mechanisms comprise co-operating male and female members.
- 30 13. A pair of eyeglasses comprising a bridge assembly comprised of separable upper and lower bridge parts, wherein the upper and lower bridge parts are connected by means of an interlocking mechanism and able to be separated by sliding the upper and lower bridge parts relative to each other in a direction generally parallel to an interface between bridge parts by a relative movement through a distance no greater than the width of the bridge assembly.
14. An eyeglass assembly comprising:
a frame configured to receive two lenses and comprising a bridge region; and
two temple arms pivotally attached to the frame,

wherein the bridge region comprises upper and lower bridge parts connected by interlocking portions configured to connect and/or disconnect by sliding the bridge parts relative to each other in a non-vertical direction,

5 wherein the interlocking portions extend no more than the width of the bridge portion.

15. An eyeglass bridge assembly comprising an upper bridge part and a lower bridge part, the upper and lower bridge part being connected along an interface by interlocking portions configured to connect and/or disconnect by
10 sliding the bridge parts relative to each other in a direction generally parallel to the interface, wherein the interlocking portions extend no more than the width of the bridge portion.

FIGURE 1

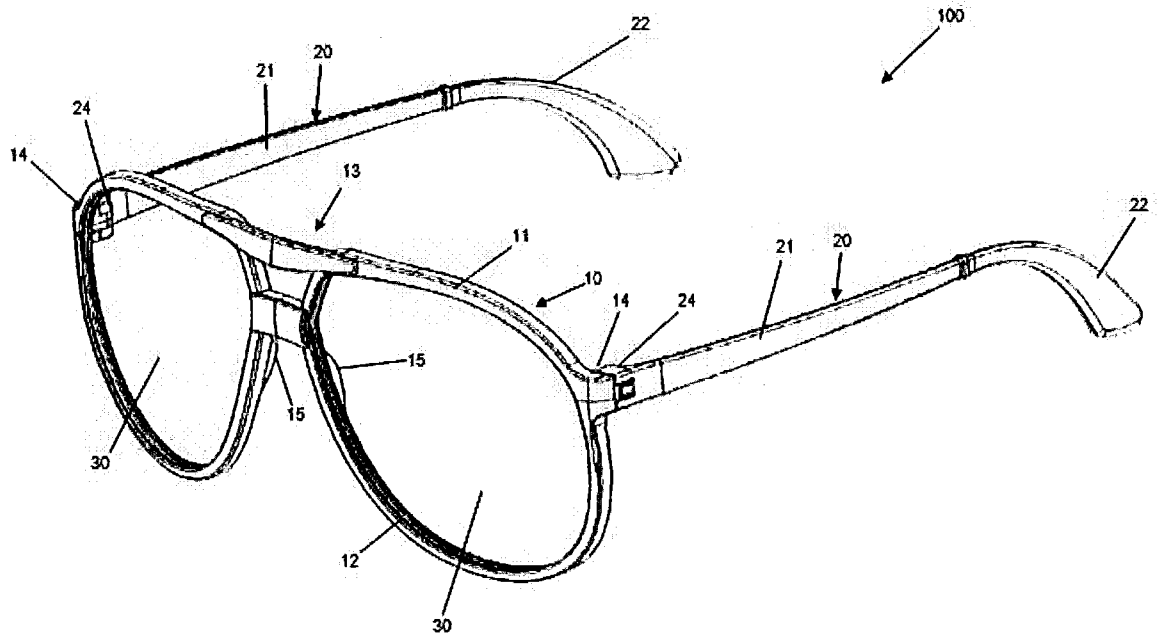


FIGURE 2A

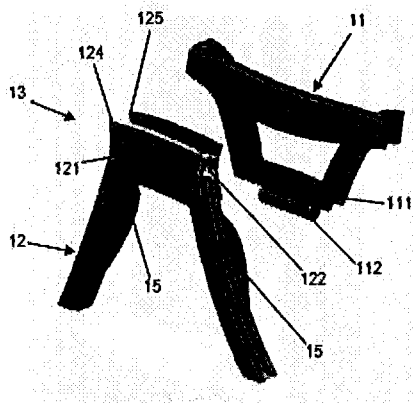


FIGURE 2A

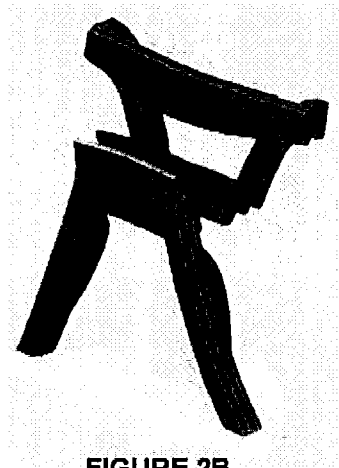


FIGURE 2B

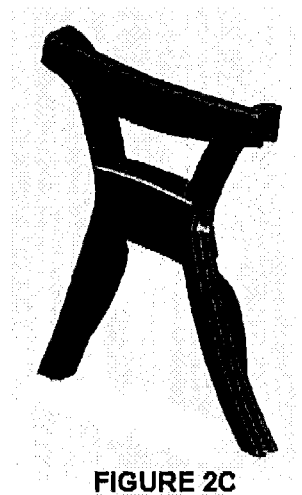


FIGURE 2C

FIGURE 3

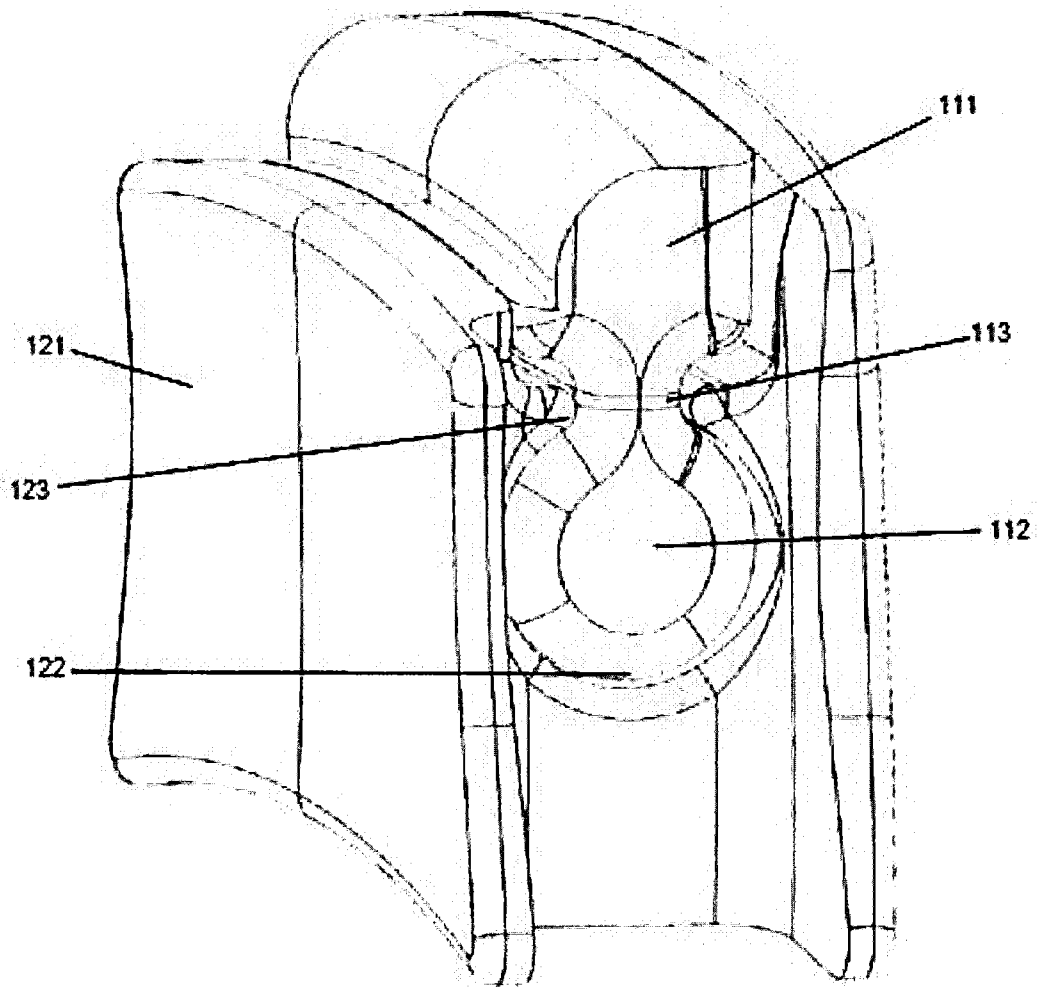


FIGURE 4

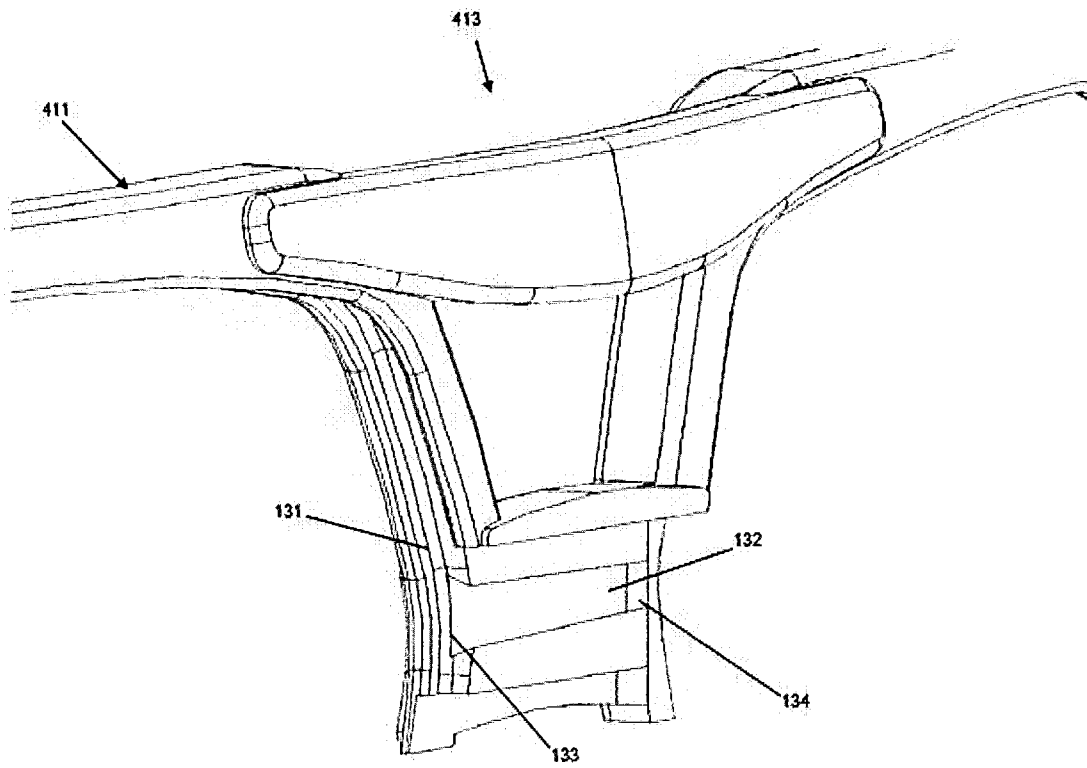
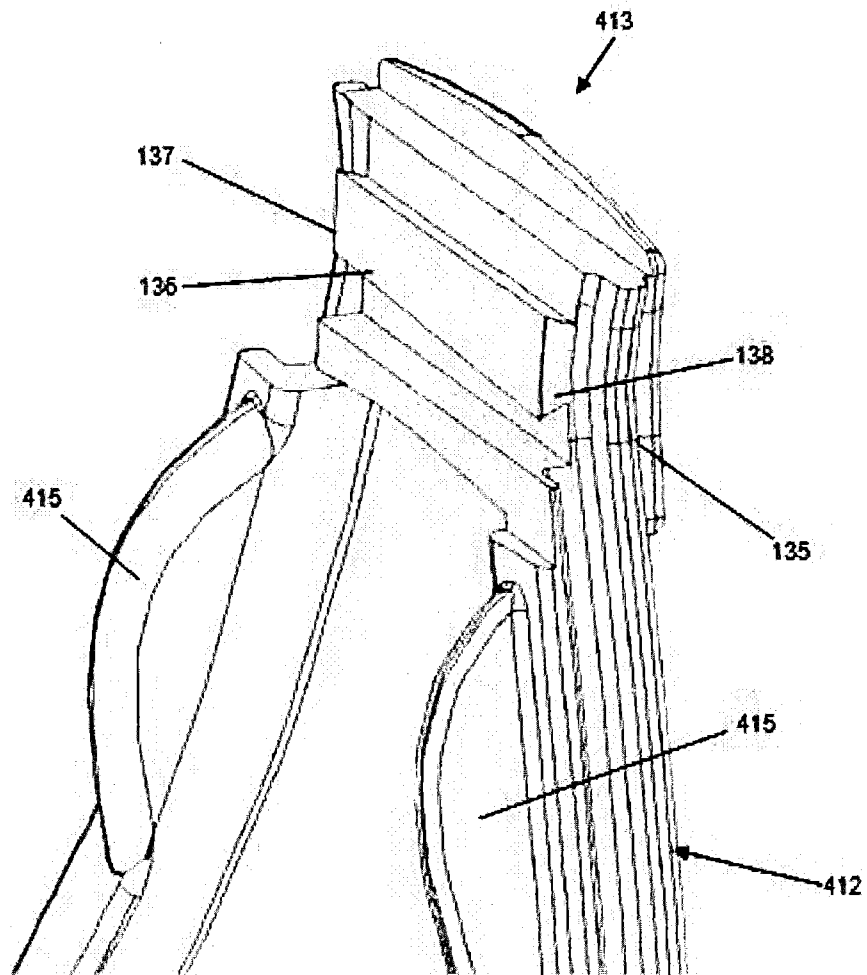


FIGURE 5



INTERNATIONAL SEARCH REPORT

International application No

PCT/NZ2014/000120

A. CLASSIFICATION OF SUBJECT MATTER
 INV. G02C5/02 G02C1/08
 ADD.

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 G02C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2010/069148 A1 (SUN HING OPTICAL MANUFACTORY L [CN]; OTIS KU [CN]) 24 June 2010 (2010-06-24)	1-9, 13-15
Y	figure 12 page 2, line 21 - line 28 page 6, line 9 - line 18	1-15
Y	----- WO 2011/149364 A1 (AUSTIN FRANCIS WILLIAM [NZ]) 1 December 2011 (2011-12-01) cited in the application figure 16 page 28, line 12 - page 29, line 23	1-15
A	----- EP 0 532 412 A1 (COMASEC INTERNATIONAL SA [FR]) 17 March 1993 (1993-03-17) figures 3, 4, 6, 7 column 6, line 30 - column 7, line 15 ----- -/-	9



Further documents are listed in the continuation of Box C.



See patent family annex.

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"&" document member of the same patent family

Date of the actual completion of the international search

31 October 2014

Date of mailing of the international search report

10/11/2014

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Vazquez Martinez, D

INTERNATIONAL SEARCH REPORT

International application No

PCT/NZ2014/000120

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	FR 2 822 556 A1 (BERNARDEAU LIONEL [FR]) 27 September 2002 (2002-09-27) page 2, line 9 - line 14; figures 5, 6 -----	1-8

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/NZ2014/000120

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FR 2822556 A1	27-09-2002	NONE	