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GLASS ASSEMBLY AND VEHICLE

Abstract

A glass assembly and a vehicle are provided. The glass assembly includes glass and a fixing member. The fixing member is fixedly connected to at least one of all outer peripheral sides of the glass. The fixing member includes a fixing portion and an elastic portion. The fixing portion defines a groove and an insert opening in communication with the groove. The insert opening is configured for insertion of an insertable member through the insert opening into the groove. The elastic portion is accommodated in the groove and protrudes from an inner sidewall of the groove defined by the fixing portion. The elastic portion is configured to abut against the insertable member inserted into the groove. The glass is configured to be fixed to the insertable member.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATION(S) [0001] The application is a continuation of Internation Application No. PCT/CN2023/128040, filed Oct. 31, 2023, which claims priority to Chinese Patent Application No. 202211395268.0, filed Nov. 9, 2022, the entire disclosure of which are hereby incorporated by reference.

TECHNICAL FIELD
[0002] This disclosure relates to the field of vehicle glass mounting, and in particular, to a glass assembly and a vehicle.
BACKGROUND
[0003] Fixed window glass, such as triangular glass, on the vehicle needs to be fixed to a vehicle body metal plate. Generally, the fixed window glass is fixed to the vehicle body metal plate by a vehicle body glue or metal nail posts. However, it takes a long time to apply and cure the vehicle body glue, which affects mounting efficiency. The locking of the metal nail posts needs to be aligned with locking nuts, which is difficult to operate and also affects the mounting efficiency.
SUMMARY
[0004] In a first aspect, the present disclosure provides a glass assembly. The glass assembly includes glass and a fixing member. The fixing member is fixedly connected to at least one of all outer peripheral sides of the glass. The fixing member includes a fixing portion and an elastic portion. The fixing portion defines a groove and an insert opening in communication with the groove. The insert opening is configured for insertion of an insertable member through the insert opening into the groove. The elastic portion is accommodated in the groove and protrudes from an inner sidewall of the groove defined by the fixing portion. The elastic portion is configured to abut against the insertable member inserted into the groove. The glass is configured to be fixed to the insertable member.
[0005] In a second aspect, the present disclosure further provides a vehicle. The vehicle includes a vehicle body and a glass assembly. The glass assembly is mounted on the vehicle body. The glass assembly includes glass and a fixing member. The fixing member is fixedly connected to at least one of all outer peripheral sides of the glass. The fixing member includes a fixing portion and an elastic portion. The fixing portion defines a groove and an insert opening in communication with the groove. The insert opening is configured for insertion of an insertable member through the insert opening into the groove. The elastic portion is accommodated in the groove and protrudes from an inner sidewall of the groove defined by the fixing portion. The elastic portion is configured to abut against the insertable member inserted into the groove. The glass is configured to be fixed to the insertable member.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] To describe the technical solutions in embodiments of the present disclosure more clearly, the accompanying drawings for use in implementations are briefly described below. Apparently, the accompanying drawings in the following description show merely some implementations of the present disclosure, and those of ordinary skill in the art may obtain other accompanying drawings from these accompanying drawings without creative effort.

[0007] FIG. **1** is a schematic structural view of a glass assembly provided in an implementation of the present disclosure mounted at an insertable member.

[0008] FIG. **2** is a schematic cross-sectional view of FIG. **1**, taken along line A-A.

[0009] FIG. **3** is a schematic structural view of a glass assembly provided in another implementation of the present disclosure mounted at an insertable member.

[0010] FIG. **4** is a schematic cross-sectional view of FIG. **3**, taken along line B-B.

[0011] FIG. **5** is a schematic cross-sectional view of FIG. **3**, taken along line C-C.

[0012] FIG. **6** is a schematic structural view of a glass assembly provided in yet another implementation of the present disclosure mounted at an insertable member.

[0013] FIG. **7** is a schematic cross-sectional view of FIG. **6**, taken along line D-D.

[0014] FIG. **8** is a schematic structural view of a fixing member provided in an implementation of the present disclosure.

[0015] FIG. **9** is a schematic structural view of a fixing member provided in another implementation of the present disclosure.

[0016] FIG. **10** is a schematic structural view of a fixing member provided in yet another implementation of the present disclosure.

[0017] FIG. **11** is a schematic view of a connection of glass and a fixing member provided in an implementation of the present disclosure.

[0018] FIG. **12** is a schematic structural view of a vehicle provided in an implementation of the present disclosure.

[0019] Reference signs: vehicle **1**; glass assembly **10**; glass **11**; fixing member **12**; fixing portion **121**; groove **1211**; insert opening **1212**; fixed body **1213**; protruding sub-portion **1214**; elastic portion **122**; elastic sub-portion **1221**; abutting sub-portion **1222**; support portion **123**; support body **1231**; epitaxial sub-portion **1232**; auxiliary member **13**; injection mold **14**; trim **15**; A vehicle body **20**; To be inserted **21**.

DETAILED DESCRIPTION

[0020] The following will clearly and completely describe technical solutions of embodiments of the present disclosure with reference to the accompanying drawings. Apparently, embodiments described herein are merely some embodiments, rather than all embodiments. Based on the embodiments of the present disclosure, all other embodiments obtained by those of ordinary skill in the art without creative effort shall fall within the protection scope of the present disclosure.

[0021] The terms such as “first”, “second”, etc., in the specification, the claims, and the above accompanying drawings of the present disclosure are used to distinguish different objects, rather than describing a particular order. In addition, the terms “including”, “comprising”, and “having” as well as variations thereof are intended to cover non-exclusive inclusion. For example, a process, method, system, product, or device including a series of steps or units is not limited to the listed steps or units, on the contrary, it can optionally include other steps or units that are not listed; alternatively, other steps or units inherent to the process, method, product, or device can be included either.

[0022] The term “embodiment” or “implementation” referred to herein means that particular features, structures, or properties described in conjunction with implementations may be defined in at least one embodiment of the present disclosure. The phrase “embodiment” appearing in various places in the specification does not necessarily refer to the same embodiment or an

independent/alternative embodiment that is mutually exclusive with other embodiments. Those skilled in the art will understand expressly and implicitly that an embodiment described in the present disclosure may be combined with other embodiments.

[0023] In a first aspect, the present disclosure provides a glass assembly. The glass assembly includes glass and a fixing member. The fixing member is fixedly connected to at least one of all outer peripheral sides of the glass. The fixing member includes a fixing portion and an elastic portion. The fixing portion defines a groove and an insert opening in communication with the groove. The insert opening is configured for insertion of an insertable member through the insert opening into the groove. The elastic portion is accommodated in the groove and protrudes from an inner sidewall of the groove defined by the fixing portion. The elastic portion is configured to abut against the insertable member inserted into the groove. The glass is configured to be fixed to the insertable member.

[0024] The fixing member is fixedly connected to at least three of the outer peripheral sides of the glass.

[0025] An orientation of the insert opening at each of the at least three of the outer peripheral sides of the glass is identical to a thickness direction of the glass.

[0026] An orientation of the insert opening at one of the at least three of the outer peripheral sides of the glass is perpendicular to a thickness direction of the glass. An orientation of the insert opening at each of the rest of the at least three of the outer peripheral sides of the glass is identical to the thickness direction of the glass.

[0027] The fixing member is fixedly connected to one of all the outer peripheral sides of the glass. An orientation of the insert opening is perpendicular to a thickness direction of the glass. The glass assembly further includes an auxiliary member. The auxiliary member is fixedly connected to another of all the peripheral sides of the glass, configured to assist fixation of the glass to a part of the insertable member, and further configured to be fixed to another part of the insertable member.

[0028] The elastic portion is implemented as at least one elastic portion. The fixing member includes multiple elastic portions. The inner sidewall of the groove is implemented as two inner sidewalls of the groove that face each other. The multiple elastic portions protrude from at least one of the two inner sidewalls of the groove defined by the fixing portion.

[0029] The elastic portion includes an elastic sub-portion and an abutting sub-portion. The elastic sub-portion has one end connected to the inner sidewall of the groove defined by the fixing portion. The abutting sub-portion is connected to the other end of the elastic sub-portion away from the inner sidewall the groove, and inclined away from the insert opening.

[0030] The fixing portion includes a fixing body and a protruding sub-portion. The fixing body defines the groove and the insert opening. The protruding sub-portion protrudes from the inner sidewall of the groove defined by the fixing portion, and faces the at least one elastic portion.

[0031] The fixing member further includes a support portion. The support portion is embedded in the fixing body and annularly disposed around the groove to support the fixing portion.

[0032] The support portion includes a support body and an epitaxial sub-portion. The support body is annularly disposed around the groove. The epitaxial sub-portion is connected to the support body at at least one side of the support body away from the groove.

[0033] The glass assembly further includes an injection mold. The injection mold is connected between the glass and the fixing member.

[0034] The glass assembly further includes a trim. The trim is configured to be mounted at one side of the injection mold exposed to an outer side of a vehicle body when the glass assembly is mounted on the vehicle body.

[0035] The fixing portion has a hardness of 80°±5° Shore A (SHA). The elastic portion has a hardness of 65°±5° SHA.

[0036] The present disclosure provides a glass assembly. The glass assembly includes the glass and the fixing member. The fixing member is fixedly connected to at least one of all the outer

peripheral sides of the glass. The fixing member can clamp the insertable member by a clamping force generated by the elastic portion and the fixing portion together after the insertable member is inserted into the groove, so as to get the insertable member stuck, so that the fixing member is fixed to the insertable member. Therefore, the glass can be quickly fixed to the insertable member by pressing the fixing portion towards the insertable member, and the operation is simple and efficiency is high. In addition, the glass does not need to be glued and mounted with metal nail posts, so that the glass has a relatively large visible region and the overall look and feel of the glass is improved. Furthermore, the glass can be quickly and non-destructively disassembled from the insertable member, which is conducive for maintenance and replacement of the glass. Therefore, the operation of fixing the glass assembly provided in the present disclosure to the insertable member is simple and efficient.

[0037] In a second aspect, the present disclosure further provides a vehicle. The vehicle includes a vehicle body and the glass assembly in the first aspect. The glass assembly is mounted on the vehicle body.

[0038] The present disclosure provides a vehicle. The glass assembly of the vehicle is mounted on at the fixed window of the vehicle body, and the glass assembly is fixedly connected to the insertable member on the vehicle body. The glass can be quickly fixed to the vehicle body by pressing the fixing portion towards the vehicle body, and the operation is simple and efficiency is high. In addition, the glass does not need to be glued and mounted with metal nail posts, so that the glass has a relatively large visible region, the overall look and feel of the glass is improved, and thus the overall look and feel of the vehicle is improved. Moreover, the glass can be quickly and non-destructively disassembled from the vehicle body, which is conducive for maintenance and replacement of the glass.

[0039] A glass assembly **10** is provided in an implementation of the present disclosure. Reference can be made to FIG. **1** and FIG. **2**, where FIG. **1** is a schematic structural view of a glass assembly provided in an implementation of the present disclosure mounted at an insertable member, and FIG. **2** is a schematic cross-sectional view of FIG. **1**, taken along line A-A. In this implementation, the glass assembly **10** includes glass **11** and a fixing member **12**. The fixing member **12** is fixedly connected to at least one of all outer peripheral sides of the glass **11**. The fixing member **12** includes a fixing portion **121** and an elastic portion **122**. The fixing portion **121** defines a groove **1211** and an insert opening **1212** in communication with the groove **1211**. The insert opening **1212** is configured for insertion of the insertable member **21** through the insert opening **1212** into the groove **1211**. The elastic portion **122** is accommodated in the groove **1211** and protrudes from an inner sidewall of the groove **1211** defined by the fixing portion **121**. The elastic portion **122** is configured to abut against the insertable member **21** inserted into the groove **1211**. The glass **11** is configured to be fixed to the insertable member **21**.

[0040] In this implementation, the glass assembly **10** is configured to be fixed to the insertable member **21**. Specifically, the glass assembly **10** is configured to be fixed to a vehicle body sheet metal.

[0041] In the related art, the fixed window glass, such as triangular glass, on the vehicle **1** needs to be fixed to the vehicle body sheet metal. Generally, the fixed window glass is fixed to the vehicle body sheet metal by a vehicle body glue and metal nail posts. However, it takes a long time to apply and cure the vehicle body glue, which affects mounting efficiency. The locking of the metal nail posts needs to be aligned with locking nuts, which is difficult to operate and also affects the mounting efficiency. In addition, when the fixed window glass **11** is fixed to the vehicle body sheet metal by metal nail posts, due to the influence of the sheet metal and the sealing performance, the metal nail posts are generally positioned at the inner side of the gluing region, and the printed edge area needs to be increased. As a result, the visible region of the fixed window becomes smaller and the overall look and feel is affected.

[0042] Compared with the related art, in this implementation, the glass **11** is fixed window glass.

The glass **11** is fixed to the insertable member **21** by the fixing member **12**. The fixing member **12** is fixedly connected to at least one of all outer peripheral sides of the glass **11**. The glass **11** can be quickly fixed to the insertable member **21** by pressing the fixing member **12** towards the insertable member **21**, so that the operation is simple, the mounting speed is fast, and the mounting efficiency is high.

[0043] Specifically, the fixing member **12** includes the fixing portion **121** and the elastic portion **122**. The fixing portion **121** defined the groove **1211** and the insert opening **1212** in communication with the groove **1211**. The insertable member **21** can enter the groove **1211** through the insert opening **1212**, so that the insertable member **21** is inserted into the fixing portion **121**. In addition, the elastic portion **122** is accommodated in the groove **1211**, and protrudes from the inner sidewall of the groove **1211** defined by the fixing portion **121**. After the insertable member **21** is inserted into the fixing portion **121**, the elastic portion **122** elastically abuts against the side surface of the insertable member **21** to fix the glass **11** to the insertable member **21** together with the fixing portion **121**.

[0044] In this implementation, the elastic portion **122** is accommodated in the groove **1211**, so that the insertable member **21** need to squeeze the elastic portion **122** to be inserted into the fixing portion **121**. After the insertable member **21** is inserted into the fixing portion **121**, since the elastic portion **122** elastically abuts against the insertable member **21**, the elastic portion **122** and the fixing portion **121** jointly generate a clamping force on the insertable member **21**, to prevent the fixing portion **121** from falling off from the insertable member **21**. Therefore, the fixing member **121** is firmly fixed to the insertable member **21**, so that the glass **11** is fixed to the insertable member **21**. The groove **1211** has a “U”-shaped structure, which can improve the fitting degree and assembly force between the fixing portion **121** and the insertable member **21**.

[0045] Optionally, the outer surface of the elastic portion **122** has a relatively large roughness, to increase the frictional force between the elastic portion **122** and the insertable member **21**. Therefore, the fixing portion **121** can be further prevent from falling off from the insertable member **21**, thereby further improving the stability of fixing the glass **11** to the insertable member **21**.

[0046] In addition, since the glass **11** can be fixed to the insertable member **21** without gluing or mounting metal nail posts, the glass **11** does not need to retain a gluing region and a metal nail post mounting region, and the fixing member **12** can be simply mounted at the outer peripheral side of the glass **11**. Therefore, the glass **11** has a relatively large visible region, the plane width of the sheet metal is reduced, and the overall look and feel of the glass **11** is improved, thereby improving the appearance effect of the entire vehicle, and providing customers with a different visual experience.

[0047] Moreover, since the glass **11** can be fixed to the insertable member **21** without gluing or installing a metal nail post, when the glass **11** is disassembled, the glass **11** can be quickly disassembled from the insertable member **21** only by applying a force in a direction opposite to the mounting direction of the glass **11**. Therefore, the disassembly is convenient and will not cause secondary damage to the glass **11** and the insertable member **21**, which is conducive to the maintenance and replacement of the glass **11**.

[0048] Furthermore, the glass assembly **10** can provide a new mounting method for the customer and improve the customer experience.

[0049] In summary, the implementation of the present disclosure provides the glass assembly **10**. The glass assembly **10** includes the glass **11** and the fixing member **12**. The fixing member **12** is fixedly connected to at least one of all the outer peripheral sides of the glass **11**. The fixing member **12** can clamp the insertable member **21** by the clamping force generated by the elastic portion **122** and the fixing portion **121** together after the insertable member **21** is inserted into the groove **1211**, so as to get the insertable member **21** stuck, so that the fixing member **12** is fixed to the insertable member **21**. Therefore, the glass **11** can be quickly fixed to the insertable member **21** by pressing

the fixing portion **121** towards the insertable member **21**, and the operation is simple and efficiency is high. In addition, the glass **11** does not need to be glued and mounted with metal nail posts, so that the glass **11** has a relatively large visible region and the overall look and feel of the glass **11** is improved. Furthermore, the glass **11** can be quickly and non-destructively disassembled from the insertable member **21**, which is conducive for maintenance and replacement of the glass **11**. Therefore, the operation of fixing the glass assembly **10** provided in the present disclosure to the insertable member **21** is simple and efficient.

[0050] Reference can be made to FIG. **1**, FIG. **2**, FIG. **3**, FIG. **4**, and FIG. **5** together, where FIG. **3** is a schematic structural view of a glass assembly provided in another implementation of the present disclosure mounted at an insertable member, FIG. **4** is a schematic cross-sectional view of FIG. **3**, taken along line B-B, and FIG. **5** is a schematic cross-sectional view of FIG. **3**, taken along line C-C. In this implementation, the fixing member **12** is fixedly connected to at least three of the outer peripheral sides of the glass **11**, to improve the stability of fixing the glass **11** to the insertable member **21**.

[0051] Specifically, in an implementation (referring to FIG. **1** and FIG. **2**), an orientation of the insert opening **1212** at each of the at least three of the outer peripheral sides of the glass **11** is identical to a thickness direction of the glass **11**.

[0052] In this implementation, the glass **11** is schematically described as having three outer peripheral sides. FIG. **2** is a schematic cross-sectional view of one outer peripheral side of the glass **11**, and it can be understood that the cross-sectional structure of the other two outer peripheral sides of the glass **11** is identical to the structure shown in FIG. **2**. Since the orientation of the insert opening **1212** is identical to the thickness direction of the glass **11**, in the process of fixing the glass **11** to the insertable member **21**, the glass **11** can be fixed to the insertable member **21** by the fixing member **12** only by aligning the insert opening **1212** with the insertable member **21** and then pressing the glass **11** towards the thickness direction of the glass **11**.

[0053] In another implementation (referring to FIG. **3**, FIG. **4**, and FIG. **5**), an orientation of the insert opening **1212** at one of the at least three of the outer peripheral sides of the glass **11** is perpendicular to the thickness direction of the glass **11**, and an orientation of the insert opening at each of the rest of all the outer peripheral sides of the glass **11** is identical to the thickness direction of the glass **11**.

[0054] In this implementation, the glass **11** is schematically described as having three outer peripheral sides. In the process of fixing the glass **11** to the insertable member **21**, part of the insert opening **1212** at one outer peripheral side, which has an orientation perpendicular to the thickness direction of the glass **11**, is aligned with part of the insertable member **21**, and a force is pressed towards the part of the insertable member **21**, so as to fix the glass **11** to the part of the insertable member **21**; and then the other part of the insert opening **1212** at the other two outer peripheral sides, which has an orientation identical to the thickness direction of the glass **11**, is aligned with the other part of the insertable member **21**, and a force is pressed towards the thickness direction of the glass **11**, so as to fix the glass **11** to the other part of the insertable member **21**, thereby fixing the glass **11** to the insertable member **21**. Since the insert opening **1212** has two different orientations at all the outer peripheral sides of the glass **11**, it is necessary to sequentially apply the force in two different directions to disassemble the glass **11** from the insertable member **21**, so that the glass **11** can be more stably fixed to the insertable member **21**. It can be understood that, the above process of fixing the glass **11** to the insertable member **21** is merely a schematic description, and the order in which the fixing members **12** provided on different outer peripheral sides of the glass **11** are fixed to the insertable member **21** is not limited.

[0055] In another implementation, the orientation of the insert opening **1212** is not limited to being identical to the thickness direction of the glass **11** or perpendicular to the thickness direction of the glass **11**, and the orientation of the insert opening **1212** may be another direction so that an angle between the orientation of the insert opening **1212** and the surface of the glass **11** is an acute angle

or an obtuse angle, which is specifically designed according to actual mounting requirements. Alternatively, when the glass **11** has four or more outer peripheral sides, the orientation of the insert opening **1212** at each of two or more of all the outer peripheral sides of the glass **11** is perpendicular to the thickness direction of the glass **11**, and the orientation of the insert opening **1212** at each of the other of all the outer peripheral sides of the glass **11** is identical to the thickness direction of the glass **11**.

[0056] Reference can be made to FIG. **6** and FIG. **7** together, where FIG. **6** is a schematic structural view of a glass assembly provided in yet another implementation of the present disclosure mounted at an insertable member, and FIG. **7** is a schematic cross-sectional view of FIG. **6**, taken along line D-D. In this implementation, the fixing member **12** is fixedly connected to one of all the outer peripheral sides of the glass **11**, and the orientation of the insert opening **1212** is perpendicular to the thickness direction of the glass **11**. The glass assembly **10** further includes an auxiliary member **13**. The auxiliary member **13** is fixedly connected to another of all the outer peripheral sides of the glass **11**. The auxiliary member **13** is configured to assist fixation of the glass **11** to a part of the insertable member **21**. The auxiliary member **13** is further configured to be fixed to another part of the insertable member **21**.

[0057] In this implementation, the auxiliary member **13** and the fixing member **12** are disposed at different sides of all the outer peripheral sides of the glass **11**. The glass **11** is fixed to the part of the insertable member **21** by the fixing member **12** at one side of the glass **11**, and the glass **11** is fixed to the other part of the insertable member **21** by the auxiliary member **13** at the other side of the glass **11**, so that the glass **11** is fixed to the insertable member **21**. The auxiliary member **13** is made of a metal material, such as stainless steel, aluminum alloy, etc., so as to improve the stability of the glass **11** fixed to the insertable member **21** and provide support.

[0058] Optionally, the auxiliary member **13** is a guide rail. The guide rail defines a fixing groove for fit and connection with one side of the glass **11** where the fixing member **12** is not provided. Both ends of the guide rail are fixed to the insertable member **21** by bolts.

[0059] Optionally, the glass **11** is fixed to the insertable member **21** by the fixing member **12** at one side of the glass **11**, and the glass **11** can be fixedly connected to the vehicle body sheet metal by integrally molded or the additionally provided fixing member **12** at the other side of the glass **11**.

[0060] Optionally, the fixing member **12** may be mounted at multiple outer peripheral sides of the glass **11** to further enhance the strength of fixing the glass **11** to the insertable member **21**.

[0061] It is to be noted that in any one of the above implementations, when the orientation of the insert opening **1212** is perpendicular to the thickness direction of the glass **11**, the fixing material **12** and the glass **11** are laminated in the thickness direction of the glass **11**, or the fixing material **12** and the glass **11** are laminated in a direction perpendicular to the surface of the glass **11**.

[0062] Reference can be made to FIG. **8** and FIG. **9**, where FIG. **8** is a schematic structural view of a fixing member provided in an implementation of the present disclosure, and FIG. **9** is a schematic structural view of a fixing member provided in another implementation of the present disclosure. In this implementation, the elastic portion **122** is implemented as at least one elastic portion **122**. The fixing member **12** includes multiple elastic portions **122**. The inner sidewall of the groove **1211** is implemented as two inner sidewalls of the groove **1211** that face each other. The multiple elastic portions **122** protrude from at least on one of the two inner sidewalls of the groove **1211** defined by the fixing portion **121**.

[0063] When the fixing member **12** includes the multiple elastic portions **122**, in an implementation, the multiple elastic portions **122** all protrude from one of the two inner sidewalls of the groove **1211** defined by the fixing member **121**, so that after the insertable member **21** is inserted into the groove **1211**, the insertable member **21** elastically abut against the multiple elastic portions **122** at one side of the insertable member **21**, and the insertable member **21** abuts against the fixing member **121** at the other opposite side of the insertable member **21**. In another implementation, the multiple elastic portions **122** protrude from the two inner sidewalls of the

groove **1211** defined by the fixing portion **121**, so that after the insertable member **21** is inserted into the groove **1211**, the multiple elastic portions **122** elastically abut against two opposite sides of the insertable member **21**, so as to increase the friction force between the insertable member **21** and each of the multiple elastic portions **122**.

[0064] Referring to FIG. **8** and FIG. **9** again, in this implementation, the elastic portion **122** includes an elastic sub-portion **1221** and an abutting sub-portion **1222**. One end of the elastic sub-portion **1221** is connected to the inner sidewall of the groove **1211** defined by the fixing portion **121**. The abutting sub-portion **1222** is connected to the other end of the elastic sub-portion **1221** away from the inner sidewall of the groove **1211**, and the abutting sub-portion **1222** is inclined away from the insert opening **1212**.

[0065] In this implementation, the abutting sub-portion **1222** is inclined away from the insert opening **1212**, so that the elastic portion **122** is "barb"-shaped. After the insertable member **21** is inserted into the groove **1211**, the elastic portion **122** abuts against the insertable member **21**, so that it is possible to further form frictional resistance against the insertable member **21** being separated from the groove **1211**, thereby improving the stability of fixing the glass **11** to the insertable member **21**.

[0066] Optionally, the surface of the abutting sub-portion **1222** for abutting against the insertable member **21** has raised or recessed microstructures, so as to increase the roughness of the surface of the abutting sub-portion **1222** abutting against the insertable member **21**, thereby further forming frictional resistance against the insertable member **21** from being separated from the groove **1211**, and further improving the stability of fixing the glass **11** to the insertable member **21**.

[0067] Referring to FIG. **8** again, in this implementation, the fixing portion **121** includes a fixing body **1213** and a protruding sub-portion **1214**. The fixing body **1213** defines the groove **1211** and the insert opening **1212**. The protruding sub-portion **1214** protrudes from the inner sidewall of the groove **1211** defined by the fixing body **1213**, and the protruding sub-portion **1214** faces the elastic portion **122**.

[0068] In this implementation, the protruding sub-portion **1214** faces the elastic portion **122**, so that after the insertable member **21** is inserted into the groove **1211**, the elastic portion **122** abuts against one side of the insertable member **21**, and the protruding sub-portion **1214** abuts against the other opposite side opposite of the insertable member **21**, thereby further forming frictional resistance against the insertable member **21** being separated from the groove **1211**, and further improving the stability of fixing the glass **11** to the insertable member **21**.

[0069] Referring to FIG. **8** again, in this implementation, the fixing member **12** further includes a support portion **123**. The support portion **123** is embedded in the fixing body **1213** and is annularly disposed around the groove **1211** to support the fixing portion **121**.

[0070] In this implementation, the support portion **123** is embedded in the fixing body **1213** to support the fixing portion **121**, thereby improving the strength of the fixing member **12** being in fit and connection with the insertable member **21**, and further improving the stability of fixing the glass **11** to the insertable member **21**.

[0071] Optionally, the support portion **123** is made of metal, which may be, but is not limited to, stainless steel, iron, aluminum alloy, etc.

[0072] Reference can be made to FIG. **10**, which is a schematic structural view of a fixing member provided in yet another implementation of the present disclosure. In this implementation, the support portion **123** includes a support body **1231** and an epitaxial sub-portion **1232**. The support body **1231** is annularly disposed around the groove **1211**. The epitaxial sub-portion **1232** is connected to the support body **1231** at at least one side of the support body **1231** away from the groove **1211**.

[0073] In this implementation, the support portion **123** includes the support body **1231** annularly disposed around the groove **1211** and the epitaxial sub-portion **1232** extending away from the groove **1211**. The epitaxial sub-portion **1232** can extend in any direction away from the groove

1211, and is specifically designed according to practical applications. In addition, the epitaxial sub-portion **1232** is also embedded in the fixing body **1213** to further support the fixing portion **121**, thereby improving the strength of the fixing member **12** in fit and connection with the insertable member **21**, and further improving the stability of fixing the glass **11** to the insertable member **21**.

[0074] Reference can be made to FIG. **11**, which is a schematic view of a connection of glass and a fixing member provided in an implementation of the present disclosure. In this implementation, the glass assembly **10** further includes an injection mold **14**. The injection mold **14** is connected between the glass **11** and the fixing member **12**.

[0075] In this implementation, the injection mold **14** is connected between the glass **11** and the fixing member **12** by injection molding, thereby enhancing the connection strength between the glass **11** and the fixing member **12**.

[0076] Optionally, the injection mold **14** is integrally formed with the fixing member **12**.

[0077] Optionally, the injection mold **14** may be, but is not limited to, polyvinyl chloride (PVC), thermoplastic elastomer (TPE), or the like.

[0078] It is to be noted that in any one of the above implementations, the injection mold **14** can be connected between the glass **11** and the fixing member **12** by injection molding. Only one implementation is adopted in FIG. **11** for schematic description.

[0079] Referring to FIG. **11** again, in this implementation, the glass assembly **10** further includes a trim **15**. The trim **15** is configured to be mounted at one side of the injection mold **14** exposed to an outer side of the vehicle body **20** when the glass assembly **10** is mounted on the vehicle body **20**.

[0080] In this implementation, the trim **15** is configured to decorate the injection mold **14**. Specifically, the trim **15** is mounted on a surface of the injection mold **14** exposed on the outer side of the vehicle body **20**, thereby improving the ornamentality of the glass assembly **10**.

[0081] Optionally, the trim **15** may be, but is not limited to, a colored ribbon, an aluminum strip, a light strip, or the like.

[0082] In addition, in any one of the above implementations, the fixing portion **121** has a hardness of 80°±5° SHA. The elastic portion **122** has a hardness of 65°±5° SHA. It can be seen that Shore A Hardness is a standard measure used to determine the hardness of soft elastic materials such as rubber, elastomers, and soft plastics. The value indicates resistance of a material to indentation under a specified force, typically ranging from 0 to 100. A higher value represents a harder material with greater resistance to compression. The hardness measurement is conducted using a Shore A durometer, following the standards GB/T 2411-2008. During testing, place the test specimen on a hard, horizontal, plane surface. Hold the durometer in a vertical position with the point of the indenter at least **9** mm from any edge of the test specimen. Apply the presser foot to the test specimen as rapidly as possible, without shock, keeping the foot parallel to the surface of the test specimen. Apply just sufficient pressure to obtain firm contact between presser foot and test specimen. Read the scale of the indicating device after 15±1 s. Make five measurements of hardness at different positions on the test specimen at least **6** mm apart and determine the mean value.

[0083] The fixing portion **121** with a relatively high hardness is adopted to improve the strength of the fixing member **12**, and the elastic portion **122** with a relatively low hardness is adopted to facilitate insertion of the insertable member **21** into the groove **1211**. In addition, the elastic portion **122** with a relatively low hardness can prevent the glass assembly **10** from being reversely withdrawn, and can reduce noise, and can also shorten the mounting time, thereby improving the operating efficiency.

[0084] Optionally, the fixing portion **121** is made of PVC, TPE, or the like, and is prepared by extrusion molding.

[0085] Optionally, the elastic portion **122** is made of PVC, TPE, or the like, and is prepared by extrusion molding.

[0086] Reference can be made to FIG. **12**, FIG. is a schematic structural view of a vehicle provided

in an implementation of the present disclosure. In this implementation, the vehicle **1** includes a vehicle body **20** and the glass assembly **10** of any one of the above implementations. The glass assembly **10** is mounted on the vehicle body **20**.

[0087] In this implementation, the glass assembly **10** is mounted on the vehicle body **20**. Specifically, the glass assembly **10** is mounted at a fixed window of the vehicle body **20**, and the glass assembly **10** is fixedly connected to the insertable member **21** on the vehicle body **20**. The insertable member **21** may be the body sheet metal or sliding window glass. The glass **11** can be quickly fixed to the vehicle body **20** by pressing the fixing portion **121** towards the vehicle body **20**, so that the operation is simple and efficient. In addition, the glass **11** does not need to be glued or mounted with metal nail posts, so that the glass **11** has a relatively large visible region, and the overall look and feel of the glass **11** is improved, thereby improving the overall look and feel of the vehicle **1**. Furthermore, the glass **11** can be quickly and non-destructively disassembled from the vehicle body **20**, which is conducive for maintenance and replacement of the glass **11**.

[0088] Although the embodiments of the present disclosure have been shown and described above, it can be understood that the above embodiments are exemplary and cannot be understood as limitations to the present disclosure. Those of ordinary skill in the art can change, amend, replace, and modify the above embodiments within the scope of the present disclosure, and these modifications and improvements are also regarded as the protection scope of the present disclosure.

Claims

1. A glass assembly, comprising: glass; and a fixing member, fixedly connected to at least one of all outer peripheral sides of the glass, wherein the fixing member comprises a fixing portion and an elastic portion, the fixing portion defines a groove and an insert opening in communication with the groove, the insert opening is configured for insertion of an insertable member through the insert opening into the groove, the elastic portion is accommodated in the groove and protrudes from an inner sidewall of the groove defined by the fixing portion, the elastic portion is configured to abut against the insertable member inserted into the groove, and the glass is configured to be fixed to the insertable member.

2. The glass assembly of claim 1, wherein the fixing member is fixedly connected to at least three of the outer peripheral sides of the glass.

3. The glass assembly of claim 2, wherein an orientation of the insert opening at each of the at least three of the outer peripheral sides of the glass is identical to a thickness direction of the glass.

4. The glass assembly of claim 2, wherein an orientation of the insert opening at one of the at least three of the outer peripheral sides of the glass is perpendicular to a thickness direction of the glass, and an orientation of the insert opening at each of the rest of the at least three of the outer peripheral sides of the glass is identical to the thickness direction of the glass.

5. The glass assembly of claim 1, wherein the fixing member is fixedly connected to one of all the outer peripheral sides of the glass, and an orientation of the insert opening is perpendicular to a thickness direction of the glass; and the glass assembly further comprises: an auxiliary member, fixedly connected to another of all the peripheral sides of the glass, configured to assist fixation of the glass to a part of the insertable member, and further configured to be fixed to another part of the insertable member.

6. The glass assembly of claim 1, wherein the elastic portion is implemented as at least one elastic portion, the fixing member comprises a plurality of elastic portions, the inner sidewall of the groove is implemented as two inner sidewalls of the groove that face each other, and the plurality of elastic portions protrude from at least one of the two inner sidewalls of the groove defined by the fixing portion.

7. The glass assembly of claim 1, wherein the elastic portion comprises: an elastic sub-portion, having one end connected to the inner sidewall of the groove defined by the fixing portion; and an

abutting sub-portion, connected to the other end of the elastic sub-portion away from the inner sidewall of the groove, and inclined away from the insert opening.

8. The glass assembly of claim 1, wherein the fixing portion comprises: a fixing body, defining the groove and the insert opening; and a protruding sub-portion, protruding from the inner sidewall of the groove defined by the fixing portion, and faces the elastic portion.

9. The glass assembly of claim 1, wherein the fixing member further comprises: a support portion, embedded in the fixing body and annularly disposed around the groove to support the fixing portion.

10. The glass assembly of claim 9, wherein the support portion comprises: a support body, annularly disposed around the groove; and an epitaxial sub-portion, connected to the support body at at least one side of the support body away from the groove.

11. The glass assembly of claim 1, further comprising: an injection mold, connected between the glass and the fixing member.

12. The glass assembly of claim 11, further comprising: a trim, configured to be mounted at one side of the injection mold exposed to an outer side of a vehicle body when the glass assembly is mounted on the vehicle body.

13. The glass assembly of claim 1, wherein the fixing portion has a hardness of 80°±5° Shore A (SHA), and the elastic portion has a hardness of 65°±5° SHA.

14. A vehicle, comprising: a vehicle body; and a glass assembly, wherein the glass assembly is mounted on the vehicle body, and the glass assembly comprises: glass; and a fixing member, fixedly connected to at least one of all outer peripheral sides of the glass, wherein the fixing member comprises a fixing portion and an elastic portion, the fixing portion defines a groove and an insert opening in communication with the groove, the insert opening is configured for insertion of an insertable member through the insert opening into the groove, the elastic portion is accommodated in the groove and protrudes from an inner sidewall of the groove defined by the fixing portion, the elastic portion is configured to abut against the insertable member inserted into the groove, and the glass is configured to be fixed to the insertable member.

15. The vehicle of claim 14, wherein the fixing member is fixedly connected to at least three of the outer peripheral sides of the glass.

16. The vehicle of claim 15, wherein an orientation of the insert opening at each of the at least three of the outer peripheral sides of the glass is identical to a thickness direction of the glass.

17. The vehicle of claim 15, wherein an orientation of the insert opening at one of the at least three of the outer peripheral sides of the glass is perpendicular to a thickness direction of the glass, and an orientation of the insert opening at each of the rest of the at least three of the outer peripheral sides of the glass is identical to the thickness direction of the glass.

18. The vehicle of claim 14, wherein the fixing member is fixedly connected to one of all the outer peripheral sides of the glass, and an orientation of the insert opening is perpendicular to a thickness direction of the glass; and the glass assembly further comprises: an auxiliary member, fixedly connected to another of all the peripheral sides of the glass, configured to assist fixation of the glass to a part of the insertable member, and further configured to be fixed to another part of the insertable member.

19. The vehicle of claim 14, where the glass assembly further comprises: an injection mold, connected between the glass and the fixing member.

20. The vehicle of claim 14, wherein the glass assembly further comprises: a trim, configured to be mounted at one side of the injection mold exposed to an outer side of a vehicle body when the glass assembly is mounted on the vehicle body.