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LENS DEVICE AND MANUFACTURING METHOD OF LENS DEVICE

Abstract

The lens device includes a fixation frame, a switch portion, and a fixing member that fixes the fixation frame and the switch portion to each other. The fixation frame includes a fitting portion and the fixing member includes a fitting target portion that is fitted to the fitting portion. The fitting target portion includes an elastic portion having elasticity and the fitting portion includes a contact portion that comes into contact with the elastic portion so that the elastic portion is elastically deformed.

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Background/Summary

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims priority under 35 USC 119 from Japanese Patent Application No. 2024-024508 filed on Feb. 21, 2024, the disclosure of which is incorporated by reference herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The present disclosed technology relates to a lens device and a manufacturing method of a lens device.

2. Description of the Related Art

[0003] Disclosed in WO2020/100619A is a lens barrel including a frame that has an opening portion, a cover member that covers the opening portion, a fixation portion that is provided on an inner surface side of the cover member and is disposed inside the frame through the opening portion in a case where the opening portion is covered with the cover member, and a spring member that is engaged with the fixation portion and an inner wall surface portion of the frame and that biases the cover member in a direction in which the cover member is pulled into the inside of the frame.

[0004] Disclosed in JP2011-064970A is a rear-focus type lens device in which an internal structure including a focus lens is accommodated in an attachment frame, which is a rear portion of a lens barrel body. In the attachment frame, an internal wall portion that separates a first space, in which the internal structure is accommodated, and a second space, in which a switch assembly including a plurality of switches provided to operate the lens device is accommodated, from each other and an opening, which is an opening for the second space that is formed at a side surface of the attachment frame and through which a switch assembly is attached, are formed. The strength of the attachment frame is increased by the internal wall portion.

[0005] Disclosed in JP2014-098822A is a lens barrel including an operation ring that moves a moving lens group, a fixation ring that is fixed to the operation ring, a movement member that is disposed on the outer periphery of the fixation ring or a fixation member integrally attached to the fixation ring, a switch member in which the points of contact are switched therebetween in a case where the movement member is moved, and a click member that is engaged with the movement member and the switch member at a first engagement portion and a second engagement portion, respectively and that is engaged with a stepped portion at a third engagement portion, the stepped portion being provided at the fixation ring or the fixation member. The click member includes a fourth engagement portion that is engaged with the fixation ring or the fixation member in a direction orthogonal to a movement direction of the movement member.

[0006] Disclosed in JP2014-229527A is a switch mechanism that is mounted on a mounting target member and that is operated from the outside of the mounting target member. The switch mechanism includes an operation target portion that is operated from the outside of the mounting target member, a base portion that is positioned inside the mounting target member and that is moved in a case where the operation target portion is operated, a position defining member that is fixed to the base portion and that defines a position to which the base portion is moved, and a connecting portion that is fixed to the base portion and that operates a switching member positioned inside the mounting target member. The base portion and the connecting portion are formed of a non-conductor, and the position defining member is formed of metal having spring properties.

SUMMARY OF THE INVENTION

[0007] The present disclosed technology provides a lens device and a manufacturing method of a lens device with which it is not necessary to use a screw to fix a switch portion to a fixation frame.

[0008] According to a first aspect of the present disclosed technology, there is provided a lens device including a fixation frame, a switch portion, and a fixing member that fixes the fixation frame and the switch portion to each other. The fixation frame includes a fitting portion, the fixing member includes a fitting target portion that is fitted to the fitting portion, the fitting target portion includes an elastic portion having elasticity, and the fitting portion includes a contact portion that comes into contact with the elastic portion to elastically deform the elastic portion.

[0009] According to a second aspect of the present disclosed technology, in the lens device according to the first aspect, the switch portion may include an outer member that is disposed to face an outside of the fixation frame, and an inner member that is disposed to face an inside of the fixation frame.

[0010] According to a third aspect of the present disclosed technology, in the lens device according to the second aspect, the fixation frame may include an opening, an outer shape portion of the outer member may be larger than the opening, and an outer shape portion of the inner member may be smaller than the opening.

[0011] According to a fourth aspect of the present disclosed technology, in the lens device according to the third aspect, the outer member may include an overlapping portion that overlaps a peripheral edge portion of the opening from the outside of the fixation frame.

[0012] According to a fifth aspect of the present disclosed technology, in the lens device according to the third or fourth aspect, the switch portion may be a switch unit that is unitized in a stage before insertion of the inner member into the opening.

[0013] According to a sixth aspect of the present disclosed technology, in the lens device according to any one of the first to fifth aspects, the switch portion may include a slide switch as a switch related to an operation performed on a lens, and a window portion that faces an inside of the fixation frame and that is open at a position corresponding to the slide switch.

[0014] According to a seventh aspect of the present disclosed technology, in the lens device according to the sixth aspect, the switch portion may include an inner member that is disposed to face the inside of the fixation frame, and the window portion may be formed at the inner member.

[0015] According to an eighth aspect of the present disclosed technology, in the lens device according to any one of the first to seventh aspects, a plurality of the fixing members may be provided, the plurality of fixing members may include a first fixing member that is disposed at a first end portion of the switch portion, and a second fixing member that is disposed at a second end portion of the switch portion.

[0016] According to a ninth aspect of the present disclosed technology, in the lens device according to any one of the first to eighth aspects, the switch portion may include a fixation portion, and the fixing member may include a fixing target portion that is fixed to the fixation portion.

[0017] According to a tenth aspect of the present disclosed technology, in the lens device according to the ninth aspect, the fixation portion may face an inside of the fixation frame.

[0018] According to an eleventh aspect of the present disclosed technology, in the lens device according to the tenth aspect, the fixation portion may include a first fixation portion formed at a first end portion of the fixation portion, and a second fixation portion formed at a second end portion of the fixation portion, and the fixing target portion may include a first fixing target portion that is fixed to the first fixation portion, and a second fixing target portion that is fixed to the second fixation portion.

[0019] According to a twelfth aspect of the present disclosed technology, in the lens device according to any one of the first to eleventh aspects, a fixing structure for fixation of the fixation frame and the switch portion may be a fitting structure.

[0020] According to a thirteenth aspect of the present disclosed technology, in the lens device according to any one of the first to twelfth aspects, the fitting portion may be formed at an inner peripheral surface of the fixation frame.

[0021] According to a fourteenth aspect of the present disclosed technology, in the lens device

according to any one of the first to thirteenth aspects, the fitting portion may not be exposed at an outer peripheral surface of the fixation frame.

[0022] According to a fifteenth aspect of the present disclosed technology, in the lens device according to any one of the first to fourteenth aspects, a direction along a direction intersecting an optical axis may be set as a direction in which the fitting target portion is fitted to the fitting portion.

[0023] According to a sixteenth aspect of the present disclosed technology, in the lens device according to any one of the first to fifteenth aspects, the fitting portion may be formed in a recessed shape.

[0024] According to a seventeenth aspect of the present disclosed technology, in the lens device according to any one of the first to sixteenth aspects, the fitting portion may include a locking portion, and the fitting target portion may include a locking target portion that is engaged with the locking portion in a direction along an optical axis.

[0025] According to an eighteenth aspect of the present disclosed technology, in the lens device according to any one of the first to seventeenth aspects, the elastic portion may extend in a direction along a direction intersecting an optical axis.

[0026] According to a nineteenth aspect of the present disclosed technology, in the lens device according to any one of the first to eighteenth aspects, the fitting target portion may include a slit formed along the elastic portion.

[0027] According to a twentieth aspect of the present disclosed technology, in the lens device according to the nineteenth aspect, the switch portion may include a slide switch as a switch related to an operation performed on a lens, a direction along an optical axis may be set as a direction in which the slide switch is operated, and the slit may extend in a direction along a direction intersecting the optical axis.

[0028] According to a twenty-first aspect of the present disclosed technology, in the lens device according to any one of the first to twentieth aspects, the contact portion may have a shape that elastically deforms the elastic portion in a direction in which the switch portion is pulled toward an inside of the fixation frame.

[0029] According to a twenty-second aspect of the present disclosed technology, in the lens device according to any one of the first to twenty-first aspects, the contact portion may be formed in a protruding shape.

[0030] According to a twenty-third aspect of the present disclosed technology, in the lens device according to any one of the first to twenty-second aspects, the fitting target portion may include a plurality of hooked portions that are hooked onto the fitting portion, and the plurality of hooked portions may include a first hooked portion that is adjacent to the elastic portion on a first side in a direction along an optical axis, and a second hooked portion that is adjacent to the elastic portion on a second side in the direction along the optical axis.

[0031] According to a twenty-fourth aspect of the present disclosed technology, there is provided a manufacturing method of the lens device according to any one of the first to twenty-third aspects, the method including a fixing step of fixing a switch portion to a fixation frame by means of a fixing member. The fixing step includes a fitting step of fitting a fitting target portion of the fixing member to a fitting portion of the fixation frame, and the fitting step includes bringing an elastic portion of the fitting target portion into contact with a contact portion of the fitting portion so that the elastic portion is elastically deformed.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0032] FIG. 1 is a side view of a lens device according to an embodiment of the present disclosed

technology.

[0033] FIG. **2** is a side view of a state where a switch unit is fixed to a fixation frame.

[0034] FIG. **3** is a perspective view of the switch unit.

[0035] FIG. **4** is a trihedral view of the switch unit.

[0036] FIG. **5** is an exploded perspective view of the switch unit.

[0037] FIG. **6** is an exploded perspective view of the fixation frame, the switch unit, and a pair of fixing members.

[0038] FIG. **7** is an exploded perspective view of the fixation frame, the switch unit, and the pair of fixing members.

[0039] FIG. **8** is a perspective view of a state where the switch unit is fixed to the fixation frame.

[0040] FIG. **9** is an enlarged perspective view of part A shown in FIG. **8**.

[0041] FIG. **10** is an enlarged perspective view of part A shown in FIG. **8** and is a view in which a fixing member is represented by imaginary lines.

[0042] FIG. **11** is an enlarged perspective view showing the fixation frame in part A shown in FIG. **8**.

[0043] FIG. **12** is a perspective view of the fixing member.

[0044] FIG. **13** is an enlarged vertical cross-sectional view of a main part in a state where the switch unit is fixed to the fixation frame.

[0045] FIG. **14** is an enlarged perspective view of a main part in a state where the switch unit is fixed to the fixation frame.

[0046] FIG. **15** is an enlarged perspective view of a state where the switch unit is fixed to the fixation frame.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0047] Hereinafter, an embodiment of the present disclosed technology will be described.

[0048] First, an overall configuration of a lens device **10** according to the present embodiment will be described. As shown in FIGS. **1** and **2**, the lens device **10** includes a lens barrel **12** and a plurality of lenses **14**. The lens device **10** is a lens device that can be applied to various cameras such as a digital still camera. The lens device **10** has an optical axis OA. A direction along an arrow X is a direction along the optical axis OA. An arrow X1 side is an object side in the direction along the optical axis OA and an arrow X2 side is an image formation side in the direction along the optical axis OA. In addition, the lens barrel **12** is formed in a tubular shape along a direction (hereinafter, will be referred to as a “direction around the optical axis”) around the optical axis OA, which is centered on the optical axis OA.

[0049] The plurality of lenses **14** are accommodated in the lens barrel **12**. The plurality of lenses **14** are disposed to be arranged in the direction along the arrow X. The plurality of lenses **14** include an objective lens, a zoom lens, a focus lens, a camera shake correction lens, an imaging lens, and the like.

[0050] The lens barrel **12** includes a fixation frame **16**. The fixation frame **16** is formed in an annular shape along the direction around the optical axis and is disposed such that the axis thereof coincides with the optical axis OA. The lens device **10** includes a switch unit **18**. The switch unit **18** is an example of a “switch portion” according to the embodiment of the present disclosed technology. The switch unit **18** is provided at the fixation frame **16**.

[0051] The switch unit **18** includes a plurality of switches related to an operation performed on at least one of the plurality of lenses **14**. The switch unit **18** includes a plurality of slide switches **20** and a push-button switch **22** as examples of the plurality of switches. Hereinafter, in a case where it is necessary to distinguish the plurality of slide switches **20** from each other, the plurality of slide switches **20** will be referred to as slide switches **20A**, **20B**, and **20C**. The slide switches **20A**, **20B**, and **20C** and the push-button switch **22** are disposed to be arranged along the direction around the optical axis in order of the slide switches **20A**, **20B**, **20C**, and the push-button switch **22**. Note that the slide switches **20A**, **20B**, and **20C** and the push-button switch **22** may be arranged in any order.

[0052] The lens device **10** has a function of switching an imaging distance range, a function of switching camera shake correction on or off, a function of selecting a focus position, and a function of setting a predetermined position as a focus position. The slide switch **20A** is a switching switch provided to switch an imaging distance range, and the slide switch **20B** is a switching switch provided to switch the camera shake correction on or off. The slide switch **20C** is a switching switch provided to select a focus position, and the push-button switch **22** is a decision switch provided to set a predetermined position as a focus position.

[0053] Each slide switch **20** includes an operation portion **24** that is slidable. The direction along the arrow X is set as a direction in which each slide switch **20** is operated (that is, a direction in which the operation portion **24** is moved). The push-button switch **22** includes an operation portion **26** that can be pressed. A radial direction of the fixation frame **16** is set as a direction in which the push-button switch **22** is operated (that is, a direction in which the operation portion **26** is moved).

[0054] Note that although the switch unit **18** includes the plurality of slide switches **20** and the push-button switch **22**, any of the plurality of slide switches **20** or the push-button switch **22** may be omitted. In addition, the switch unit **18** may include, as an example of the plurality of switches, a switch other than the above-described switches. In addition, the switch unit **18** may include a switch related to an operation performed on an element other than the lenses. Examples of the switch related to an operation performed on an element other than the lenses include a power switch.

[0055] Subsequently, a configuration of the switch unit **18** will be described. As shown in FIGS. **3** and **4**, the switch unit **18** is configured to be unitized in advance before the switch unit **18** is attached to the above-described fixation frame **16** (refer to FIGS. **1** and **2**), and the switch unit **18** includes an outer case **28** and an inner case **30** in addition to the plurality of slide switches **20** and the push-button switch **22**. The outer case **28** is an example of an “outer member” according to the embodiment of the present disclosed technology, and the inner case **30** is an example of an “inner member” according to the embodiment of the present disclosed technology. Each of the outer case **28** and the inner case **30** is formed in an arc shape. The outer case **28** constitutes an outer peripheral portion of the switch unit **18**, and the inner case **30** constitutes an inner peripheral portion of the switch unit **18**.

[0056] More specifically, the outer case **28** includes an exterior portion **32** and a case portion **34**. The exterior portion **32** is formed in an arc-like plate shape, and the case portion **34** is provided on an inner peripheral side of the exterior portion **32**. The operation portion **24** of each slide switch **20** is provided at the exterior portion **32** and can be operated from the outside of the switch unit **18**. Similarly, the operation portion **26** of the push-button switch **22** is also provided at the exterior portion **32** and can be operated from the outside of the switch unit **18**.

[0057] The inner case **30** is mounted to the case portion **34** on an inner peripheral side of the switch unit **18**. The inner case **30** and the case portion **34** constitute an accommodation portion **36** that accommodates each of members (refer to FIG. **5**) constituting the switch unit **18**, which will be described later. The exterior portion **32** is formed in a longitudinal shape of which a lateral direction is the direction along the arrow X and a longitudinal direction is the direction along the optical axis. The exterior portion **32** is formed to have a size larger than the accommodation portion **36** and includes a flange portion **38** that projects from a periphery of the accommodation portion **36**. More specifically, the flange portion **38** includes a pair of first flange portions **38A** extending in the longitudinal direction of the exterior portion **32** and a pair of second flange portions **38B** extending in the lateral direction of the exterior portion **32**.

[0058] As shown in FIG. **5**, the switch unit **18** includes the outer case **28**, the inner case **30**, a plurality of first screws **40**, a seal member **42**, a flexible cable **44**, a plurality of switch members **46**, a switch member **48**, a plurality of second screws **50**, an attachment member **52**, a plurality of click members **54**, a holding member **56**, a plurality of double-sided tapes **58**, a plurality of operation portions **24**, and the operation portion **26**.

[0059] The plurality of first screws **40** are screws provided to fix the case portion **34** of the outer case **28** and the inner case **30**. The seal member **42** is interposed between the case portion **34** of the outer case **28** and the inner case **30** and seals a space between the case portion **34** and the inner case **30**. The flexible cable **44** includes a plurality of input portions **60** and an output portion **62**. The plurality of input portions **60** and the output portion **62** are connected to each other by a wiring member (not shown). The output portion **62** is connected to, for example, a control substrate (not shown) provided in the lens device **10**. The switch members **46** constitute switch bodies of the slide switches **20**, respectively and the switch member **48** constitutes a switch body of the push-button switch **22**. The switch members **46** and the switch member **48** are connected to the input portions **60**, respectively.

[0060] The click members **54** are members that impart a click feeling with respect to the respective operation portions **24** of the slide switches **20**, respectively and are formed of sheet metals. The second screws **50** are screws provided to fix the click members **54** to the outer case **28**, respectively. A plurality of openings **64** and an opening **66** are formed in the outer case **28**. Each opening **64** penetrates in a plate thickness direction of the outer case **28** and is open to an outer peripheral side and an inner peripheral side of the outer case **28**. Similarly, the opening **66** also penetrates in the plate thickness direction of the outer case **28** and is open to the outer peripheral side and the inner peripheral side of the outer case **28**.

[0061] The respective operation portions **24** of the slide switches **20** are provided on the outer peripheral side of the outer case **28** and are fixed to the click members **54** by the double-sided tapes **58** via the openings **64**. The click members **54** are attached to the respective switch members **46** of the slide switches **20**, respectively. The holding member **56** is fixed to the switch member **48** of the push-button switch **22** via the attachment member **52**. The operation portion **26** of the push-button switch **22** is held by the holding member **56** and is exposed on the outer peripheral side of the outer case **28** via the opening **66**.

[0062] Next, a fixation structure for fixation of the switch unit **18** to the fixation frame **16** will be described. As described above, the direction along the arrow X is the direction along the optical axis OA. A direction along an arrow Y is an attachment direction in which the switch unit **18** is attached to the fixation frame **16**. An arrow Y1 side is a front side in the attachment direction, and an arrow Y2 side is a rear side in the attachment direction. A direction along an arrow Z is a direction along a tangential direction of the fixation frame **16**. An arrow Z1 side is a first side in the tangential direction of the fixation frame **16** and an arrow Z2 side is a second side in the tangential direction of the fixation frame **16**. The direction along the arrow X, the direction along the arrow Y, and the direction along the arrow Z are directions orthogonal to each other.

[0063] As shown in FIGS. **6** to **8**, the fixation frame **16** includes an opening **68**. The opening **68** is formed by a hole that penetrates in the direction along the arrow Y. The opening **68** is formed in a rectangular shape corresponding to an outer shape portion of the inner case **30**. The direction along the arrow Y corresponds to a direction along the radial direction of the fixation frame **16**. Note that the opening **68** may be formed by a notch that penetrates in the radial direction of the fixation frame **16**.

[0064] An outer shape portion of the outer case **28** is formed to be larger than the opening **68**, and the outer shape portion of the inner case **30** is formed to be smaller than the opening **68**. The outer shape portion of the outer case **28** is formed by an outer peripheral portion of the flange portion **38**. The outer shape portion of the inner case **30** is formed by an outer peripheral portion of the inner case **30**. In addition, an outer shape portion of the case portion **34** is also formed to be smaller than the opening **68**. The outer shape portion of the case portion **34** is formed by an outer peripheral portion of the case portion **34**. The inner case **30** and the case portion **34** are configured to be insertable into the opening **68** from the outside of the fixation frame **16** since the outer shape portions thereof are formed to be smaller than the opening **68**. The switch unit **18** is unitized in a stage before insertion of the inner case **30** and the case portion **34** (that is, the accommodation

portion **36**) into the opening **68**.

[0065] The switch unit **18** is mounted to the fixation frame **16** with the inner case **30** and the case portion **34** inserted into the opening **68**. In a state where the switch unit **18** is mounted to the fixation frame **16**, the flange portion **38** of the outer case **28** overlaps a peripheral edge portion of the opening **68** from the outside of the fixation frame **16**. The flange portion **38** is an example of an “overlapping portion” according to the embodiment of the present disclosed technology. In addition, in a state where the switch unit **18** is mounted to the fixation frame **16**, the outer case **28** is disposed to face the outside of the fixation frame **16** and the inner case **30** is disposed to face the inside of the fixation frame **16**. That is, the outer case **28** is exposed to the outside of the fixation frame **16**, and the inner case **30** is exposed to the inside of the fixation frame **16**.

[0066] The lens device **10** includes a pair of fixing members **70**. The switch unit **18** is fixed to the fixation frame **16** by the pair of fixing members **70** in a state of being mounted to the fixation frame **16**. Specifically, each fixing member **70** includes a fixing target portion **72** and a fitting target portion **74**. The inner case **30** of the switch unit **18** includes a pair of fixation portions **76**, and an inner peripheral surface of the fixation frame **16** includes a pair of fitting portions **78**. In a state where the inner case **30** and the case portion **34** are inserted into the opening **68** and the switch unit **18** is mounted to the fixation frame **16**, the respective fixing target portions **72** of the fixing members **70** are respectively fixed to the fixation portions **76** and the respective fitting target portions **74** of the fixing members **70** are respectively fitted into the fitting portions **78**, so that the switch unit **18** is fixed to the fixation frame **16**.

[0067] One of the pair of fixation portions **76** is provided at a first end portion of the inner case **30** and the other of the pair of fixation portions **76** is provided at a second end portion of the inner case **30**, the second end portion being on a side opposite to the first end portion. The first end portion of the inner case **30** is an end portion of the inner case **30** that is positioned on one side in a circumferential direction of the fixation frame **16**, and the second end portion of the inner case **30** is an end portion of the inner case **30** that is positioned on the other side in the circumferential direction of the fixation frame **16**. The first end portion is an example of a “first end portion of the switch portion” according to the embodiment of the present disclosed technology and the second end portion is an example of a “second end portion of the switch portion” according to the embodiment of the present disclosed technology.

[0068] One of the pair of fixing members **70** is fixed to the one of the fixation portions **76** and is disposed at the first end portion of the inner case **30** and the other of the pair of fixing members **70** is fixed to the other of the fixation portions **76** and is disposed at the second end portion of the inner case **30**. Since the one of the fixing members **70** is disposed at the first end portion of the inner case **30** and the other of the fixing members **70** is disposed at the second end portion of the inner case **30**, the pair of fixing members **70** is disposed such that the fixing members **70** are separated from each other in the circumferential direction of the fixation frame **16**. In other words, the pair of fixing members **70** is disposed such that the fixing members **70** are separated from each other in the direction along the arrow Z, which is the tangential direction of the fixation frame **16**. One of the pair of fitting portions **78** is formed at a position corresponding to the one of the fixation portions **76**, and the other of the pair of fitting portions **78** is formed at a position corresponding to the other of the fixation portions **76**.

[0069] Note that although the pair of fixing members **70** is used for fixation of the switch unit **18** to the fixation frame **16**, the number of fixing members **70** used for the fixation may be three or more. The number of fixing members **70** may be any number. Hereinafter, a case where the pair of fixing members **70** is used will be described as an example. The pair of fixing members **70** is an example of a “plurality of fixing members” according to the embodiment of the present disclosed technology. The one of the fixing members **70** is an example of a “first fixing member” according to the embodiment of the present disclosed technology. The other of the fixing members **70** is an example of a “second fixing member” according to the embodiment of the present disclosed

technology.

[0070] A fixation structure via which the one of the fixing members **70** is fixed to the switch unit **18** and a fixation structure via which the other of the fixing members **70** is fixed to the switch unit **18** are configured to be symmetrical in the direction along the arrow Z. Similarly, a fitting structure via which the one of the fixing members **70** is fitted to the fixation frame **16** and a fitting structure via which the other of the fixing members **70** is fitted to the fixation frame **16** are configured to be symmetrical in the direction along the arrow Z. Hereinafter, one of a pair of fixation structures that is on the arrow Z1 side will be described and description about the other of the pair of fixation structures that is on the arrow Z2 side will be omitted. Similarly, one of a pair of fitting structures that is on the arrow Z1 side will be described and description about the other of the pair of fitting structures that is on the arrow Z2 side will be omitted.

[0071] As shown in FIGS. **9** and **10**, the fixation portion **76** for fixation of the fixing member **70** to the switch unit **18** is formed at the inner case **30**. Since the fixation portion **76** is formed at the inner case **30**, the fixation portion **76** faces the inside of the fixation frame **16**. That is, the fixation portion **76** is exposed to the inside of the fixation frame **16**.

[0072] The fixation portion **76** includes a first fixation portion **80**, a second fixation portion **82**, and a snap-fit portion **84**. The first fixation portion **80** is formed at a first end portion of the fixation portion **76** that is on the arrow X1 side, and the second fixation portion **82** is formed at a second end portion of the fixation portion **76** that is on the arrow X2 side. The first fixation portion **80** and the second fixation portion **82** are positioned on both sides with respect to the snap-fit portion **84** in the direction along the arrow X. Specifically, the first fixation portion **80** is positioned on the arrow X1 side with respect to the snap-fit portion **84** and the second fixation portion **82** is positioned on the arrow X2 side with respect to the snap-fit portion **84**.

[0073] The first fixation portion **80** includes a first groove **86** extending along the direction along the arrow Z. Similarly, the second fixation portion **82** includes a second groove **88** extending along the direction along the arrow Z. Each of the first groove **86** and the second groove **88** penetrates in the direction along the arrow Z. In addition, the first groove **86** is open on the second groove **88** side (that is, the arrow X2 side), and the second groove **88** is open on the first groove **86** side (that is, the arrow X2 side).

[0074] The snap-fit portion **84** is formed by an elastic piece extending in the direction along the arrow Z. The snap-fit portion **84** is positioned at a central portion between the first fixation portion **80** and the second fixation portion **82** in the direction along the arrow X. A pair of slits **90** is formed such that the slits **90** are on both sides with respect to the snap-fit portion **84** in the direction along the arrow X. The pair of slits **90** extends in the direction along the arrow Z. Each slit **90** penetrates in the direction along the arrow Y.

[0075] An end portion of the snap-fit portion **84** that is on the arrow Z1 side is a connection end connected to the inner case **30**, and an end portion of the snap-fit portion **84** that is on the arrow Z2 side is a free end not connected to the inner case **30**. A protrusion portion **92** is formed at the free end of the snap-fit portion **84**. The protrusion portion **92** protrudes from the free end of the snap-fit portion **84** toward the arrow Y1 side.

[0076] As shown in FIGS. **10** and **11**, the fitting portion **78** for fixation of the fixing member **70** to the fixation frame **16** is formed at the inner peripheral surface of the fixation frame **16**. The fitting portion **78** is formed in a recessed shape. The fitting portion **78** is formed to be adjacent to the opening **68**. Specifically, the fitting portion **78** is formed on an edge portion of the peripheral edge portion of the opening **68** on the arrow Z1 side with respect to the opening **68** in the inner peripheral surface of the fixation frame **16**. The fitting portion **78** is formed to be open on the arrow Z2 side. Since the fitting portion **78** is formed in the recessed shape, the fitting portion **78** is not exposed at an outer peripheral surface of the fixation frame **16**. That is, the fitting portion **78** does not penetrate in the radial direction of the fixation frame **16** and ends at a position inward of the outer peripheral surface of the fixation frame **16**.

[0077] A side surface that is one of inner surfaces of the recessed fitting portion **78** and that is on the arrow **X1** side is formed as a first locking portion **94** and a side surface that is one of the inner surfaces and that is on the arrow **X2** side is formed as a second locking portion **96**. The first locking portion **94** and the second locking portion **96** are examples of “locking portions” according to the embodiment of the present disclosed technology.

[0078] In addition, a contact portion **100** is formed on a side surface **98**, which is one of the inner surfaces of the recessed fitting portion **78** and is on the arrow **Y2** side. The contact portion **100** is formed at a central portion of the side surface **98** in the direction along the arrow **X**, and is formed in a protrusion-like shape protruding from the side surface **98** toward the arrow **Y1** side.

[0079] As shown in FIG. **12**, the fixing member **70** is formed in a plate-like shape. The fixing member **70** is made of, for example, a metal, and is composed of a sheet metal member manufactured by using a sheet metal. The fixing member **70** includes the fixing target portion **72** and the fitting target portion **74**. The fixing target portion **72** is a portion that is fixed to the fixation portion **76** (refer to FIG. **10**) and is composed of a portion of the fixing member **70** that is on the arrow **Z2** side. The fitting target portion **74** is a portion that is fitted to the fitting portion **78** (refer to FIG. **11**) and is composed of a portion of the fixing member **70** that is on the arrow **Z1** side.

[0080] The fixing target portion **72** includes a first fixing target portion **102** and a second fixing target portion **104**. The first fixing target portion **102** is formed by an end portion of the fixing target portion **72** that is on the arrow **X1** side, and the second fixing target portion **104** is formed by an end portion of the fixing target portion **72** that is on the arrow **X2** side.

[0081] In addition, the fixing target portion **72** includes a notched portion **106**. The notched portion **106** is formed at an end portion of the fixing target portion **72** that is on the arrow **Z2** side. The notched portion **106** penetrates in the direction along the arrow **Y** and is open on the arrow **Z2** side. The notched portion **106** is positioned at a central portion of the fixing target portion **72** in the direction along the arrow **X**.

[0082] The fitting target portion **74** includes a first hooked portion **108**, a second hooked portion **110**, and an elastic portion **112**. The first hooked portion **108**, the second hooked portion **110**, and the elastic portion **112** are arranged in the direction along the arrow **X**. For example, the first hooked portion **108** is positioned on the arrow **X1** side with respect to the elastic portion **112**, and the second hooked portion **110** is positioned on the arrow **X2** side with respect to the elastic portion **112**. The elastic portion **112** is positioned between the first hooked portion **108** and the second hooked portion **110** in the direction along the arrow **X**.

[0083] Note that although the fitting target portion **74** includes the first hooked portion **108** and the second hooked portion **110**, the fitting target portion **74** may include one hooked portion or three or more hooked portions. The number of hooked portions may be any number. Hereinafter, a case where the fitting target portion **74** includes the first hooked portion **108** and the second hooked portion **110** will be described as an example. The first hooked portion **108** and the second hooked portion **110** are examples of a “plurality of hooked portions” according to the embodiment of the present disclosed technology.

[0084] A slit **114** is formed between the first hooked portion **108** and the elastic portion **112**. Similarly, the slit **114** is also formed between the second hooked portion **110** and the elastic portion **112**. Each slit **114** extends along the direction along the arrow **Z**. With a pair of slits **114** formed at the fitting target portion **74**, the first hooked portion **108**, the second hooked portion **110**, and the elastic portion **112** are formed at the fitting target portion **74**. Each of the first hooked portion **108**, the second hooked portion **110**, and the elastic portion **112** is formed by an elastic piece extending in the direction along the arrow **Z**. The direction along the arrow **Z** is an example of a “direction along a direction intersecting an optical axis” according to the embodiment of the present disclosed technology.

[0085] In addition, in a state where the switch unit **18** is mounted to the fixation frame **16**, the switch unit **18** is fixed to the fixation frame **16** by means of the fixing member **70** in a manner as

follows. First, the first hooked portion **108** and the second hooked portion **110** are inserted into the first groove **86** and the second groove **88** from the arrow Z2 side. In a case where the first fixing target portion **102** and the second fixing target portion **104** are inserted into the first groove **86** and the second groove **88** from the arrow Z2 side, the elastic portion **112** comes into contact with the protrusion portion **92** of the snap-fit portion **84** and thus the snap-fit portion **84** is elastically deformed toward the arrow Y2 side.

[0086] Then, in a case where tip portions of the first hooked portion **108** and the second hooked portion **110** pass through the first groove **86** and the second groove **88**, the first fixing target portion **102** and the second fixing target portion **104** are inserted into the first groove **86** and the second groove **88**. Note that base end portions of the first hooked portion **108** and the second hooked portion **110** are also inserted into the first groove **86** and the second groove **88**. In addition, in a case where the protrusion portion **92** rides over the elastic portion **112** and the fixing target portion **72**, the snap-fit portion **84** is deformed toward the arrow Y1 side to restore the original shape thereof and the protrusion portion **92** is inserted into the notched portion **106**. Accordingly, the protrusion portion **92** is locked to the notched portion **106** from the arrow Z2 side. In a case where the first fixing target portion **102** and the second fixing target portion **104** are inserted into the first groove **86** and the second groove **88** and the protrusion portion **92** is locked to the notched portion **106**, the fixing target portion **72** is fixed to the fixation portion **76**. In this manner, the fixing target portion **72** is fixed to the fixation portion **76** from the arrow Z2 side.

[0087] In addition, in a case where the tip portions of the first hooked portion **108** and the second hooked portion **110** pass through the first groove **86** and the second groove **88**, the tip portions are hooked onto the side surface **98** of the fitting portion **78** from the arrow Y1 side. Furthermore, the elastic portion **112** comes into contact with the contact portion **100** and thus the elastic portion **112** is elastically deformed toward the arrow Y1 side. The contact portion **100** has a shape that elastically deforms the elastic portion **112** toward the arrow Y1 side. With the first hooked portion **108** and the second hooked portion **110** hooked onto the side surface **98** of the fitting portion **78** and the elastic portion **112** coming into contact with the contact portion **100** to be elastically deformed, the fitting target portion **74** is fitted to the fitting portion **78**. In this manner, the fitting target portion **74** is fitted to the fitting portion **78** from the arrow Z2 side. Furthermore, in a state where the fitting target portion **74** is fitted to the fitting portion **78**, the first hooked portion **108** is locked to the first locking portion **94** from the arrow X2 side, and the second hooked portion **110** is locked to the second locking portion **96** from the arrow X1 side. The first hooked portion **108** and the second hooked portion **110** are examples of “locking target portions” according to the embodiment of the present disclosed technology.

[0088] In the above-described manner, the switch unit **18** is fixed to the fixation frame **16** by means of the fixing member **70** in a state of being mounted to the fixation frame **16**. As shown in FIG. **13**, in a state where the switch unit **18** is fixed to the fixation frame **16** by means of the fixing member **70**, the elastic portion **112** comes into contact with the contact portion **100** to be elastically deformed toward the arrow Y1 side and thus a pulling force F, which is a force that pulls the switch unit **18** toward the inside of the fixation frame **16** (that is, the arrow Y1 side), acts on the switch unit **18**.

[0089] In a case where the pulling force F acts on the switch unit **18**, the flange portion **38** of the outer case **28** overlaps the peripheral edge portion of the opening **68** from the outside of the fixation frame **16** (that is, the arrow Y2 side). In addition, the first hooked portion **108** and the second hooked portion **110** are hooked onto the side surface **98** of the fitting portion **78** in such a direction that the switch unit **18** is restrained from falling out to the outside of the fixation frame **16** (that is, the arrow Y2 side) (refer to FIG. **9**). That is, the switch unit **18** is fixed to the fixation frame **16** in a state where the fixation frame **16** is interposed between the fixing member **70** and the flange portion **38**.

[0090] As described above, in the lens device **10**, a screwless fitting structure, in which no screw is

used, is used for the fixation structure for fixation of the switch unit **18** to the fixation frame **16**. In addition, in the fitting structure, a structure in which the fitting portion **78** is formed at the inner peripheral surface of the fixation frame **16** and the fitting target portion **74** is fitted to the fitting portion **78** from the inside of the fixation frame **16** is adopted. Furthermore, in the fitting structure, the direction along the arrow Z is set as a direction in which the fitting target portion **74** is fitted to the fitting portion **78**. The direction along the arrow Z is an example of a “direction along a direction intersecting an optical axis” according to the embodiment of the present disclosed technology.

[0091] Note that as shown in FIG. **14**, a holding portion **116** that holds a part of the flexible cable **44** is formed at the inner case **30**. The holding portion **116** is formed by a pair of claw portions **118**. In addition, as shown in FIG. **15**, a plurality of window portions **120** are formed in the inner case **30**. Each window portion **120** is open at a position corresponding to the slide switch **20**. Each window portion **120** faces the inside of the fixation frame **16**. That is, each window portion **120** is exposed to the inside of the fixation frame **16**.

[0092] Next, an assembling method of the lens device **10** of the present embodiment will be described.

[0093] The assembling method of the lens device **10** of the present embodiment includes an assembling step of assembling the lens barrel **12** and an attaching step of attaching the plurality of lenses **14** inside the lens barrel **12**. The attaching step includes a mounting step of inserting the inner case **30** into the opening **68** from the outside of the fixation frame **16** and mounting the switch unit **18** to the fixation frame **16** and a fixing step of fixing the switch unit **18** to the fixation frame **16** by means of the pair of fixing members **70**.

[0094] The fixing step includes a fitting step of respectively fixing the pair of fixing members **70** to the fixation portions **76** from the inside of the fixation frame **16** and respectively fitting the fitting target portions **74** of the pair of fixing members **70** to the fitting portions **78**. The fitting step includes bringing the elastic portions **112** of the fitting target portions **74** into contact with the contact portions **100** of the fitting portions **78** so that the elastic portions **112** are elastically deformed and hooking the first hooked portions **108** and the second hooked portions **110** onto the side surfaces **98** of the fitting portions **78**. Note that the assembling method of the lens device **10** of the present embodiment is an example of a “manufacturing method of a lens device” according to the embodiment of the present disclosed technology.

[0095] Next, the effects of the present embodiment will be described. [0096] (1) As described above, in the lens device **10** according to the present embodiment, the fixing member **70** is used to fix the switch unit **18** to the fixation frame **16**. The fixation frame **16** includes the fitting portion **78**, and the fixing member **70** includes the fixing target portion **72** that is fixed to the fixation portion **76** of the switch unit **18** and the fitting target portion **74** that is fitted to the fitting portion **78**.

Therefore, it is possible to fix the switch unit **18** to the fixation frame **16** by fixing the fixing target portion **72** of the fixing member **70** to the fixation portion **76** and fitting the fitting target portion **74** of the fixing member **70** to the fitting portion **78**. [0097] (2) The fitting target portion **74** includes the elastic portion **112** having elasticity and the fitting portion **78** includes the contact portion **100** that comes into contact with the elastic portion **112** such that the elastic portion **112** is elastically deformed. Therefore, since the elastic portion **112** is elastically deformed, the fitting target portion **74** can be firmly fitted to the fitting portion **78** in comparison with, for example, a case where the fitting target portion **74** is fitted to the fitting portion **78** without elastic deformation of the elastic portion **112**. Accordingly, it is not necessary to use screws to fix the switch unit **18** to the fixation frame **16**. [0098] (3) The fixation structure for fixation of the fixation frame **16** and the switch unit **18** is the fitting structure in which the fitting portion **78** and the fitting target portion **74** are used. Therefore, it is not necessary to use screws to fix the switch unit **18** to the fixation frame **16** and thus it is possible to avoid various problems that are caused in a case where screws are loosened due to aging. Furthermore, it is also possible to avoid various problems as described in (4) to (6)

below, which are caused in a case where screws are used. [0099] (4) For example, in a case where screws are used to fix the switch unit **18** to the fixation frame **16** and the switch unit **18** is fixed to the fixation frame **16** by means of the screws from the outside of the fixation frame **16**, the screws are exposed to the outside of the fixation frame **16**, and thus the appearance of a peripheral portion of the switch unit **18** may be deteriorated. However, in a case where no screws are used to fix the switch unit **18** to the fixation frame **16**, it is possible to avoid the deterioration in appearance of the peripheral portion of the switch unit **18**. [0100] (5) For example, in a case where the switch unit **18** is fixed to the fixation frame **16** by means of screws from the inside of the fixation frame **16** for the purpose of avoiding the deterioration in appearance of the peripheral portion of the switch unit **18**, a driver is inserted into the fixation frame **16** in an oblique direction with respect to an optical axis of the fixation frame **16** and the screws are tightened by means of the driver. However, in such a case, the fixation frame **16** may be damaged due to a tip of the driver that collides with the fixation frame **16** or the flexible cable **44** may be damaged due to the tip of the driver that is caught by the flexible cable **44** in a case where the driver is inserted into the fixation frame **16**. However, in a case where no screws are used to fix the switch unit **18** to the fixation frame **16**, it is possible to avoid the damage to the fixation frame **16** that is caused by the tip of the driver that collides with the fixation frame **16** and the damage to the flexible cable **44** that is caused by the tip of the driver that is caught by the flexible cable **44**. [0101] (6) For example, in a case where the switch unit **18** is fixed to the fixation frame **16** by means of screws at a plurality of positions separated from each other in the circumferential direction of the fixation frame **16**, the roundness of the fixation frame **16** may be deteriorated due to fastening forces caused by the screws at the plurality of positions and thus there may be a decrease in operability of an operation ring (not shown) provided at the lens device **10**. However, in a case where no screws are used to fix the switch unit **18** to the fixation frame **16**, it is possible to suppress the deterioration in roundness of the fixation frame **16** and thus it is possible to suppress the decrease in operability of the operation ring. [0102] (7) The switch unit **18** includes the outer case **28** that is disposed to face the outside of the fixation frame **16** and the inner case **30** that is disposed to face the inside of the fixation frame **16** and the fixation frame **16** includes the opening **68**. The outer shape portion of the outer case **28** is larger than the opening **68**, and the outer shape portion of the inner case **30** is smaller than the opening **68**. Therefore, even in a case where the outer case **28** is mounted to the inner case **30** so that the switch unit **18** is unitized in a stage before the mounting of the switch unit **18** to the fixation frame **16**, the switch unit **18** can be mounted to the fixation frame **16**. [0103] (8) The outer case **28** has an overlapping portion that overlaps the peripheral edge portion of the opening **68** from the outside of the fixation frame **16**. Therefore, it is possible to restrain the outer case **28** from wobbling with respect to the fixation frame **16** in a state where the switch unit **18** is mounted to the fixation frame **16**. Accordingly, it is possible to improve workability related to a case where the fitting target portion **74** is fitted to the fitting portion **78** in a state where the switch unit **18** is mounted to the fixation frame **16**. In addition, since it is possible to suppress formation of a gap between the outer case **28** and the fixation frame **16** with the overlapping portion, it is possible to restrain a foreign substance from infiltrating into a space between the outer case **28** and the fixation frame **16**. [0104] (9) The switch unit **18** is unitized in a stage before insertion of the inner case **30** and the case portion **34** into the opening **68**. Therefore, for example, it is possible to improve workability in the case of assembly in comparison with a case where the switch unit **18** is not unitized in a stage before insertion of the inner case **30** into the opening **68** and members (for example, the outer case **28**, the inner case **30**, and the like) constituting the switch unit **18** are separately mounted to the fixation frame **16**. [0105] (10) The switch unit **18** includes the window portions **120** that are open at positions corresponding to the slide switches **20**. The window portions **120** are formed at the inner case **30** disposed to face the inside of the fixation frame **16**. Therefore, in a state where the switch unit **18** is mounted to the fixation frame **16**, the positions of the respective operation portions **24** of the slide switches **20** can be checked from the inside of the fixation frame **16** through the window

portions **120**. [0106] (11) The pair of fixing members **70** is used to fix the switch unit **18** to the fixation frame **16**. One of the pair of fixing members **70** is fixed to the fixation portion **76** provided at the first end portion of the inner case **30** and the other of the pair of fixing members **70** is fixed to the fixation portion **76** provided at the second end portion of the inner case **30**. Therefore, the switch unit **18** can be fixed to the fixation frame **16** at two positions of the first end portion and the second end portion of the inner case **30** and thus the switch unit **18** can be stably fixed to the fixation frame **16** in comparison with, for example, a case where the switch unit **18** is fixed to the fixation frame **16** at one position. In addition, a space for disposition of the pair of fixing members **70** can be made small in comparison with, for example, a case where one fixing member (that is, one fixing member that extends in the direction along the arrow Z from one fixation portion **76** to the other fixation portion **76**) that has a configuration obtained by connecting the pair of fixing members **70** to each other. Therefore, the size of the lens device **10** can be reduced. [0107] (12) The switch unit **18** includes the fixation portion **76** and the fixing member **70** includes the fixing target portion **72** that is fixed to the fixation portion **76**. A snap-fit structure in which the snap-fit portion **84**, which is an elastic piece, is used is applied for the fixation portion **76**. Therefore, it is possible to firmly fix the fixing target portion **72** to the fixation portion **76** in comparison with, for example, a case where the snap-fit structure is not applied for the fixation portion **76** and thus it is possible to restrain the fixing member **70** from falling off the switch unit **18** due to shock or aging. [0108] (13) The fixation portion **76** provided at the switch unit **18** faces the inside of the fixation frame **16**. Therefore, it is possible to avoid the deterioration in appearance of the peripheral portion of the switch unit **18** in comparison with, for example, a case where the fixation portion **76** faces the outside of the fixation frame **16**. [0109] (14) The fixation portion **76** includes the first fixation portion **80** formed at the first end portion of the fixation portion **76** that is on the arrow X1 side and the second fixation portion **82** formed at the second end portion of the fixation portion **76** that is on the arrow X2 side and the fixing target portion **72** includes the first fixing target portion **102** fixed to the first fixation portion **80** and the second fixing target portion **104** fixed to the second fixation portion **82**. Therefore, the fixing target portion **72** can be stably fixed to the fixation portions **76** in comparison with, for example, a case where the fixing target portion **72** is fixed to the fixation portion **76** at one position. [0110] (15) The fitting portion **78** is formed at the inner peripheral surface of the fixation frame **16** and the fitting portion **78** is not exposed at the outer peripheral surface of the fixation frame **16**. Therefore, it is possible to avoid the deterioration in appearance of the peripheral portion of the switch unit **18** in comparison with, for example, a case where the fitting portion **78** is exposed at the outer peripheral surface. [0111] (16) The direction along the arrow Z is set as a direction in which the fitting target portion **74** is fitted to the fitting portion **78**. Therefore, for example, an operator can fit the fitting target portion **74** to the fitting portion **78** by pushing the fixing member **70** in the direction along the arrow Z with a finger. [0112] (17) The fitting portion **78** is formed in a recessed shape. Therefore, it is possible to restrain the fitting portion **78** from protruding to the inside of the fixation frame **16** in comparison with, for example, a case where the fitting portion **78** is formed in a protruding shape. [0113] (18) The fitting portion **78** includes the first locking portion **94** and the second locking portion **96** and the fitting target portion **74** includes the first hooked portion **108** and the second hooked portion **110** that are engaged with the first locking portion **94** and the second locking portion **96** in the direction along the arrow X. Therefore, it is possible to restrain the fitting target portion **74** from wobbling with respect to the fitting portion **78** in the direction along the arrow X in a state where the fitting target portion **74** is fitted to the fitting portion **78**. [0114] (19) The contact portion **100** has a shape that elastically deforms the elastic portion **112** in a direction in which the switch unit **18** is pulled toward the inside of the fixation frame **16**. Therefore, in a case where the elastic portion **112** comes into contact with the contact portion **100**, the pulling force F, which is a force that pulls the switch unit **18** toward the inside of the fixation frame **16**, can be generated by the elastic portion **112**. Accordingly, the switch unit **18** can be fixed to the fixation frame **16** in a state of being pulled toward the inside of the

fixation frame **16**. [0115] (20) The fitting target portion **74** includes the first hooked portion **108** and the second hooked portion **110** that are hooked onto the fitting portion **78**. Therefore, the first hooked portion **108** and the second hooked portion **110** are hooked onto the fitting portion **78** and thus the switch unit **18** can be restrained from falling out to the outside of the fixation frame **16** by the first hooked portion **108** and the second hooked portion **110**. In addition, since the fitting target portion **74** can be hooked onto the fitting portion **78** at two positions that are at the first hooked portion **108** and the second hooked portion **110**, a retaining force with respect to the switch unit **18** can be increased in comparison with, for example, a case where the fitting target portion **74** is hooked onto the fitting portion **78** at one position. [0116] (21) The first hooked portion **108** is adjacent to the elastic portion **112** on the arrow X1 side and the second hooked portion **110** is adjacent to the elastic portion **112** on the arrow X2 side. Therefore, since the first hooked portion **108** and the second hooked portion **110** are disposed on both sides with respect to the elastic portion **112** in the direction along the arrow X, a retaining force with respect to the switch unit **18** can be exerted in a balanced manner in comparison with, for example, a case where the fitting target portion **74** is hooked onto the fitting portion **78** on one side with respect to the elastic portion **112**.

[0117] Note that contents described and shown above are for detailed description of a part according to the present disclosed technology and are merely an example of the present disclosed technology. For example, description of the above-described configurations, functions, actions, and effects is description related to an example of configurations, functions, actions, and effects of parts related to the present disclosed technology. Therefore, it is a matter of course that an unnecessary part of the contents described and illustrated above may be deleted, a new element may be added, and replacement may be made without departing from the spirit of the present disclosed technology. In addition, in order to avoid complication and facilitate the understanding of a portion according to the present disclosed technology, regarding the contents described and illustrated above, description related to common technical knowledge or the like which does not need to be described to enable implementation of the present disclosed technology has been omitted.

Claims

1. A lens device comprising: a fixation frame; a switch portion; and a fixing member that fixes the fixation frame and the switch portion to each other, wherein the fixation frame includes a fitting portion, the fixing member includes a fitting target portion that is fitted to the fitting portion, the fitting target portion includes an elastic portion having elasticity, and the fitting portion includes a contact portion that comes into contact with the elastic portion so that the elastic portion is elastically deformed.
2. The lens device according to claim 1, wherein the switch portion includes an outer member that is disposed to face an outside of the fixation frame, and an inner member that is disposed to face an inside of the fixation frame.
3. The lens device according to claim 2, wherein the fixation frame includes an opening, an outer shape portion of the outer member is larger than the opening, and an outer shape portion of the inner member is smaller than the opening.
4. The lens device according to claim 3, wherein the outer member includes an overlapping portion that overlaps a peripheral edge portion of the opening from the outside of the fixation frame.
5. The lens device according to claim 3, wherein the switch portion is a switch unit that is unitized in a stage before insertion of the inner member into the opening.
6. The lens device according to claim 1, wherein the switch portion includes a slide switch as a switch related to an operation performed on a lens, and a window portion that faces an inside of the fixation frame and that is open at a position corresponding to the slide switch.
7. The lens device according to claim 6, wherein the switch portion includes an inner member that

is disposed to face the inside of the fixation frame, and the window portion is formed at the inner member.

8. The lens device according to claim 1, wherein a plurality of the fixing members are provided, and the plurality of fixing members include a first fixing member that is disposed at a first end portion of the switch portion, and a second fixing member that is disposed at a second end portion of the switch portion.

9. The lens device according to claim 1, wherein the switch portion includes a fixation portion, and the fixing member includes a fixing target portion that is fixed to the fixation portion.

10. The lens device according to claim 9, wherein the fixation portion faces an inside of the fixation frame.

11. The lens device according to claim 10, wherein the fixation portion includes a first fixation portion formed at a first end portion of the fixation portion, and a second fixation portion formed at a second end portion of the fixation portion, and the fixing target portion includes a first fixing target portion that is fixed to the first fixation portion, and a second fixing target portion that is fixed to the second fixation portion.

12. The lens device according to claim 1, wherein a fixing structure for fixation of the fixation frame and the switch portion is a fitting structure.

13. The lens device according to claim 1, wherein the fitting portion is formed at an inner peripheral surface of the fixation frame.

14. The lens device according to claim 1, wherein the fitting portion is not exposed at an outer peripheral surface of the fixation frame.

15. The lens device according to claim 1, wherein a direction along a direction intersecting an optical axis is set as a direction in which the fitting target portion is fitted to the fitting portion.

16. The lens device according to claim 1, wherein the fitting portion is formed in a recessed shape.

17. The lens device according to claim 1, wherein the fitting portion includes a locking portion, and the fitting target portion includes a locking target portion that is engaged with the locking portion in a direction along an optical axis.

18. The lens device according to claim 1, wherein the elastic portion extends in a direction along a direction intersecting an optical axis.

19. The lens device according to claim 1, wherein the fitting target portion includes a slit formed along the elastic portion.

20. The lens device according to claim 19, wherein the switch portion includes a slide switch as a switch related to an operation performed on a lens, a direction along an optical axis is set as a direction in which the slide switch is operated, and the slit extends in a direction along a direction intersecting the optical axis.

21. The lens device according to claim 1, wherein the contact portion has a shape that elastically deforms the elastic portion in a direction in which the switch portion is pulled toward an inside of the fixation frame.

22. The lens device according to claim 1, wherein the contact portion is formed in a protruding shape.

23. The lens device according to claim 1, wherein the fitting target portion includes a plurality of hooked portions that are hooked onto the fitting portion, and the plurality of hooked portions include a first hooked portion that is adjacent to the elastic portion on a first side in a direction along an optical axis, and a second hooked portion that is adjacent to the elastic portion on a second side in the direction along the optical axis.

24. A manufacturing method of a lens device, the method comprising: a fixing step of fixing a switch portion to a fixation frame by means of a fixing member, wherein the fixing step includes a fitting step of fitting a fitting target portion of the fixing member to a fitting portion of the fixation frame, and the fitting step includes bringing an elastic portion of the fitting target portion into

contact with a contact portion of the fitting portion so that the elastic portion is elastically deformed.
