Claims

[1] An optical connector which is to be attached to a coated optical fiber, said optical connector comprising:

a ferrule into which a bare optical fiber that is obtained by peeling a coating of said coated optical fiber is to be inserted;

a fixing portion which fixes said coated optical fiber inserted into said ferrule; and

a coating-removing portion which removes the coating from an end portion of said coated optical fiber, by means of a force of inserting said coated optical fiber into said optical connector.

[2] An optical connector according to claim 1, wherein

said coating-removing portion is an insertion port for said bare optical fiber in said ferrule.

[3] An optical connector according to claim 2, wherein

said insertion port has a diameter which is larger than an outer diameter of said bare optical fiber, and which is smaller than an outer diameter of said coating.

[4] An optical connector according to any one of claims 1 to 3, further comprising:

a flexure space which can house said coated optical fiber in a state where said coated optical fiber is flexed, between said fixing portion and said coating-removing portion.

[5] An optical connector according to claim 4, further comprising:

a guide capillary which restricts a radial movement of said coated optical fiber, between said coating-removing portion and said flexure space.

[6] An optical connector according to any one of claims 1 to 5, wherein

said ferrule includes an optical member which is to communicate with said inserted bare optical fiber.

[7] An optical connector according to claim 6, wherein

said optical member is a short optical fiber which is fixed to an inside of said ferrule.

[8] An optical connector according to claim 6, wherein

said optical member is a thin film which is disposed in an end portion of said ferrule.

[9] An optical connector according to claim 1, wherein

an optical fiber holding hole in which said coated optical fiber is to be passed and fixed is formed in said ferule, and

said optical fiber holding hole includes: a first hole portion which is to house said coated optical fiber; a second hole portion which is to house said bare optical fiber that is obtained by peeling the coating of said coated optical fiber; and a coating-receiving portion which is located between said first hole portion and said second hole portion, and which is to house the peeled coating.

[10] An optical connector according to claim 9, wherein

said coating-receiving portion is formed in a space which is larger than said first hole portion.

[11] An optical connector according to claim 9 or 10, wherein

said coating-removing portion is formed in an end portion of said second hole portion which faces said coating-receiving portion.

[12] An optical connector according to claim 11, wherein

a tip end of said coating-removing portion is formed into an acute-angled shape.

[13] An optical connector according to claim 12, wherein

the tip end of said coating-removing portion has a conical or pyramidal shape.

[14] An optical connector according to any one of claims 9 to 13, wherein

an inner circumferential face of an end portion of said second hole portion is a tapered face which is gradually inclined from an opening position having a dimension that is larger than an outer diameter of said bare optical fiber to be inserted into second hole portion, and that is smaller than an outer diameter of said coated optical fiber.

[15] An optical connector according to any one of claims 9 to 14, wherein

said first hole portion and said second hole portion are formed in separate components, respectively.

[16] An optical connector according to claim 15, wherein

a coating-removing component in which said second hole portion is formed is fitted into a fitting hole of a body of said ferrule in which said first hole portion is formed, and said coating-receiving portion is formed between a tip end face of said coating-removing component and a bottom face of said fitting hole.

[17] An optical connector according to any one of claims 9 to 16, wherein

said coating-receiving portion is formed in a space having a rectangular sectional shape or a cross sectional shape.

[18] An optical connector according to any one of claims 9 to 17, wherein,

in said ferrule, said coating-receiving portion is formed by a vertical hole which perpendicularly intersects with said optical fiber holding hole between said first hole portion and said second hole portion.

[19] A method of attaching an optical connector according to any one of claims 1 to 18 to a coated optical fiber, said method comprising steps of:

inserting the coated optical fiber into said optical connector;

butting a tip end of said coated optical fiber against said coating-removing portion to peel a coating of a tip end side; and

inserting a bare optical fiber which is exposed by peeling the coating, into said ferrule.

[20] A method of attaching an optical connector according to any one of claims 9 to 18 to a coated optical fiber, said method comprising steps of:

inserting the coated optical fiber into said first hole portion of said optical fiber holding hole;

butting a tip end of said coated optical fiber against said coating-removing portion to peel a coating of a tip end side, and housing the peeled coating in said coating-receiving portion; and

inserting a bare optical fiber which is exposed by peeling the coating, into said second hole portion.

[21] An optical connection member which is to be attached to a coated optical fiber, said optical connection member comprising:

a connecting portion into which a bare optical fiber that is obtained by peeling a coating of said coated optical fiber is to be inserted;

a fixing portion which fixes said coated optical fiber inserted into said connecting portion; and

a coating-removing portion which removes the coating from an end portion of said coated optical fiber, by means of a force of inserting said coated optical fiber into said optical connection member,

wherein said coating-removing portion is disposed on both axial sides of said connecting portion.

The invention claimed is:

1. An optical connector which is to be attached to a coated optical fiber, said optical connector comprising:

a ferrule into which a bare optical fiber is to be inserted, said bare optical fiber being obtained by peeling a coating of said coated optical fiber;

a fixing portion which fixes said coated optical fiber; and

a coating-removing portion which presses the end face of the coating in the end face of said coated optical fiber, then removes the coating from an end portion of said coated optical fiber, by means of a force of inserting said coated optical fiber into said optical connector.

2. An optical connector according to claim **1**, wherein

said coating-removing portion is an insertion port for said bare optical fiber in said ferrule.

3. An optical connector according to claim **2**, wherein

said insertion port has a diameter which is larger than an outer diameter of said bare optical fiber, and which is smaller than an outer diameter of said coating.

4. An optical connector according to claim **1**, further comprising:

a flexure space which can house said coated optical fiber in a state where said coated optical fiber is flexed, between said fixing portion and said coating-removing portion.

5. An optical connector according to claim **4**, further comprising:

a guide capillary which restricts a radial movement of said coated optical fiber, between said coating-removing portion and said flexure space.

6. An optical connector according to claim **1**, wherein

said ferrule includes an optical member which is to communicate with said inserted bare optical fiber.

7. An optical connector according to claim **6**, wherein

said optical member is a short optical fiber which is fixed to an inside of said ferrule.

8. An optical connector according to claim **6**, wherein

said optical member is a thin film which is disposed in an end portion of said ferrule.

9. An optical connector according to claim 1, wherein
an optical fiber holding hole in which said coated optical fiber is to be passed and fixed is formed in said ferrule, and
said optical fiber holding hole includes: a first hole portion which is to house said coated optical fiber; a second hole portion which is to house said bare optical fiber that is obtained by peeling the coating of said coated optical fiber; and a coating-receiving portion which is located between said first hole portion and said second hole portion, and which is to house the peeled coating.

10. An optical connector according to claim 9, wherein
said coating-receiving portion is formed in a space which is larger than said first hole portion.

11. An optical connectors according to claim 9, wherein
said coating-removing portion is formed in an end portion of said second hole portion which faces said coating-receiving portion.

12. An optical connector according to claim 11, wherein
a tip end of said coating-removing portion is formed into an acute-angled shape.

13. An optical connector according to claim 9, wherein
an inner circumferential face of an end portion of said second hole portion is a tapered face which is gradually inclined from an opening position having a dimension that is larger than an outer diameter of said bare optical fiber to be inserted into second hole portion, and that is smaller than an outer diameter of said coated optical fiber.

14. An optical connector according to claim 9, wherein
said first hole portion and said second hole portion are formed in separate components, respectively.

15. An optical connector according to claim 14, wherein
a coating-removing component in which said second hole portion is formed is fitted into a fitting hole of a body of said ferrule in which said first hole portion is formed, and said coating-receiving portion is formed between a tip end face of said coating-removing component and a bottom face of said fitting hole.

16. An optical connector according to claim 9, wherein said coating-receiving portion is formed in a space having a sectional shape in the form of a rectangle or a cross.

17. An optical connector according to claim 9, wherein, in said ferrule, said coating-receiving portion is formed by a vertical hole which perpendicularly intersects with said optical fiber holding hole between said first hole portion and said second hole portion.

18. A method of attaching an optical connector according to claim 1 to a coated optical fiber, said method comprising steps of:

inserting the coated optical fiber into said optical connector;

butting a tip end of said coated optical fiber against said coating-removing portion to peel a coating of a tip end side; and

inserting a bare optical fiber which is exposed by peeling the coating, into said ferrule.

19. A method of attaching an optical connector according to claim 9 to a coated optical fiber, said method comprising steps of:

inserting the coated optical fiber into said first hole portion of said optical fiber holding hole;

butting a tip end of said coated optical fiber against said coating-removing portion to peel a coating of a tip end side, and housing the peeled coating in said coating-receiving portion; and

inserting a bare optical fiber which is exposed by peeling the coating, into said second hole portion.

20. An optical connection member which is to be attached to a coated optical fiber, said optical connection member comprising:

a connecting portion into which a bare optical fiber that is obtained by peeling a coating of said coated optical fiber is to be inserted;

a fixing portion which fixes said coated optical fiber; and

a coating-removing portion which presses an end face of the coating in an end face of the coated optical fiber, and removes the coating from an end portion of said coated optical fiber, by means of a force of inserting said coated optical fiber into said optical connection member,

wherein said coating-removing portion is disposed on both axial sides of said connecting portion.

21. An optical connector according to claim 1, wherein:

the coating-removing portion is provided at the whole circumference of a insertion port for said bare optical fiber and abuts with the coating of the end portion of said coated optical fiber, and

removes the coating from the end portion of said coated optical fiber, by means of a force of inserting said coated optical fiber into said optical connector.