

Description

Background of the Invention

Field of the Invention

This invention relates to a terminal device for optical fibers such as a connector plug and a connector receptacle.

More specifically, this invention relates to a terminal device for optical fibers which is provided with ferrules to be connected to the end portions of optical fibers and includes a mechanism for preventing damage, for example breakage, of the optical fibers and also avoiding a decrease in light transmittance which may be caused by bending of the optical fibers.

Description of the Prior Art

In a conventional terminal device for optical fibers, the end portions of the optical fibers are connected to ferrules provided in the terminal device.

The conventional device, however, has the following problems to be solved.

In detaching two connected terminal devices, for example a connector plug and a connector receptacle, it is frequently the practice to grasp optical fibers instead of the frames of these devices. The pulling force exerted on the optical fibers in this case may act on both the strands and coverings of the optical fibers and result in breakage of the strands, or may result in improper positioning of the strands in the terminal devices.

Furthermore, it sometimes happens that the strands stretch owing to thermal expansion and a force is generated to push the strands into the inward portions of the terminal devices. It has been proposed on the other hand to provide ferrules elastically with respect to frames in order to ensure intimate connection of the optical fibers in an optical fiber connector. In such a case, the excessive lengths of strands exist within the terminal devices and consequently the strands are bent. Bending of the strands undesirably causes a decrease in the light transmittance of the optical fibers.

As information transmitting systems become complex, necessity arises to mount and detach a plurality of optical fibers on and from various devices. If in such a case the optical fibers are mounted and detached independently from each other, the mounting and detaching operations become complex, and moreover, the lengths of the plurality of optical fibers become non-uniform. As a result, the load will be concentrated on a specific optical fiber and may break it.

Summary of the Invention

US-A-4 252 406 describes a terminal device for a plurality of optical fibers in which a plurality of ferrules are disposed on the ends of the fibers. The ferrules are positioned by a positioning member to which the ferrules are fixed. In accordance with the invention the fixing means includes a first collar engaging a flange provided at one end of each ferrule and a second collar engaging the ferrule to

press the positioning member against the first collar.

The ferrules can be supported in a frame which is conveniently a two-part operable frame which can be easily opened to permit access to all the components therein. The ferrules can be fixedly or movably, e.g. elastically, supported by the frame. Preferably, a connecting member secures the sheath of each fiber to the respective ferrule. In the case where the sheath of each fiber has an interior and an exterior sheath portion the exterior portion can be fixed to the frame by the connecting member while the strand and the interior sheath portion pass through a hole in the connecting member.

In contrast to prior art devices, excessive pulling force on the strands can be resisted to prevent breakage. It is desirable to provide guide means in the frame to guide the fibers from their entry into the ferrules. The strands then need be scarcely bent to avoid decrease in light transmittance.

Brief Description of the Accompany Drawings

An embodiment of the present invention will now be described with reference to the accompanying drawings wherein:

Figure 1 is partly sectional top plan view of an optical fiber connector plug constructed in accordance with the invention with a portion thereof removed;

Figure 2 is an exploded view of the principal portions of the optical fiber connector plug of Figure 1; and

Figure 3 is a side elevation of the optical fiber connector plug of Figure 1.

Detailed Description of Preferred Embodiment

A connector plug 12 for two optical fibers 10 and 11 is shown in Figure 1 and 3.

Each of the optical fibers 10 and 11 is comprised of a strand 14 composed of a core and a cladding layer, an interior sheath portion 16 covering the strand 14 in loose fit and an exterior sheath portion 18 covering the interior sheath portion 16 in loose fit.

The connector plug 12 has a frame 20, two ferrules 22 and 23, a connecting member 24 for connecting the exterior sheath portions 18 and 19 of the optical fibers 10 and 11 respectively to the ferrules 22 and 23, a positioning member 26 for positioning the two ferrules 22 and 23 in a predetermined positional relationship, and a fixing member 28 for fixing the ferrules 22 and 23 to the positioning member 26.

The frame 20 is comprised of two portions 30 and 31 having the same shape as shown in Figure 3. The frame 20 includes an end portion 32 to be connected to a member to be mated with the connector plug 12, for example an optical fiber connector receptacle (not shown), and an exit portion 34 from which the optical fibers 10 and 11 come out of the connector plug 12. The two portions 30 and 31 of the frame 20 are connected, for example, by two sets of bolts and nuts (not shown) set through holes 36 and 37.

The ferrules 22 and 23 are comprised respectively of ferrule bodies 38 and 39, forward end collars 40 and 41 and strand holding pipes 42 and 43. The base end sides 38a and 39a of the ferrule bodies 38 and 39 have larger inside and outside diameters than their forward end sides 38b and 39b respectively. Furthermore, a plurality of slits 44 are formed on the base end sides 38a and 39a and their diameters can be reduced by the force acting in the inward direction. A circumferentially extending channel 46 is formed on the inner circumferential surfaces of the base end sides 38a and 39a of the ferrule bodies 38 and 39 so as to avoid easy detachment of the connecting member 24 and the exterior sheath portions 18 and 19 of the optical fibers 10 and 11 from the ferrule bodies 38 and 39. Flanges 48 and 49 are formed at the distal ends of the base end sides 38a and 39a of the ferrule bodies 38 and 39. These flanges serve to position the ferrules 22 and 23 with respect to the positioning member 26. The strands 14 and 15 at the forward ends of the optical fibers 10 and 11 from which the exterior sheath portions 18 and 19 and interior sheath portions 16 have been removed are disposed in strand holding pipes 42 and 43 for centering. The strand holding pipes 42 and 43 are fitted tightly in the small inside diameter portions of the forward end collars 40 and 41, and the small outside diameter portions 50 of the forward end portions of the ferrule bodies 38 and 39 are fitted tightly in the large inside diameter portions of the forward end collars 40 and 41. As a result, the forward ends of the strands 14 and 15 of the optical fibers 10 and 11 are fixedly disposed in the ferrule bodies 38 and 39.

The connecting member 24 has a main portion 52 having a nearly cylindrical shape and a flange portion 54 formed at one end thereof. The flange portion 54 has an outside diameter nearly equal to the inside diameter of each of the base end side 38a and 39a of the ferrule bodies 38 and 39. As will be described hereinbelow, when the inside diameters of the base end sides 38a and 39a of the ferrule bodies 38 and 39 are reduced by base end collars 56 and 57, etc., the flange portions 54 are fixed to the ferrule bodies 38 and 39. The exterior sheath portions 18 and 19 of the optical fibers 10 and 11 are disposed between the main portion 52 of the connecting member and the base end sides 38a and 39a of the ferrule bodies 38 and 39, and by the reduction of the inside diameters of the base end portions 38a and 39a, the exterior sheath portions 18 and 19 are connected to the ferrule bodies 38 and 39. A central hole 58 is formed in the connecting member 24, and the strands 14 and 15 and the interior sheath portions 16 of the optical fibers 10 and 11 pass through the central hole 58. The connecting member 24 has sufficient rigidity and its central hole 58 has a slightly larger outside diameter than the interior sheath portion 16, whereby the force exerted on the exterior sheath portions 18 and 19 of the optical fibers 10 and 11 and the main portion 52 of the connecting member 24 from the

ferrule bodies 38 and 39 does not act on the interior sheath portions 16 and the strands 14 and 15 of the optical fibers 10 and 11.

The positioning member 26 is formed as a nearly elliptical plate-like unit having two circular holes 60 and 61 having inside diameters nearly equal to the outside diameter of the main bodies 38 and 39 of the ferrules 22 and 23. As will be described hereinbelow, the ferrules 22 and 23 are fixed to the positioning member 26 by the fixing members 28 and 29 while they extend through the circular holes 60 and 61 of the positioning member 26. As a result, the two ferrules 22 and 23 are fixedly positioned in a predetermined positional relationship.

The fixing members 28 and 29 consist respectively of base end collars 56 and 57, cushioning members 62 and 63 and holding collars 64 and 65. The base end collars 56 and 57 have inside diameters slightly smaller than the outside diameters of the base end sides 38a and 39a of the ferrule bodies 38 and 39, and are passed over the ferrule bodies 38 and 39 from the forward end sides 38b and 39b and engaged respectively with the peripheries of the base end sides 38a and 39b in tight fit. Thus, the collars 56 and 57 are held at positions at which they make contact with the flanges 48 and 49 of the ferrule bodies 38 and 39. The base end collars 56 and 57 reduce the outside diameters of the base end sides 38a and 39b to fix the exterior sheath portions 18 and 19 of the optical fibers 10 and 11 to the ferrule bodies 38 and 39, respectively. The cushioning members 62 and 63 are formed of an elastic material such as rubber and received around the peripheries of the base end sides 38a and 39a of the ferrule bodies 38 and 39 in tight fit in a manner to interpose the positioning member 26 between the base end collars 56 and 57. The holding collars 64 and 65 have rigidity as do the base end collars 56 and 57. They have slightly smaller inside diameters than the outside diameters of the base end sides 38a and 39a of the ferrule bodies 38 and 39 and engage the peripheries of the ferrule bodies 38 and 39 respectively in tight fit in such a manner as to push the cushioning members 62 and 63 towards the base end sides 38a and 39a respectively. In this manner, the two ferrules 22 and 23 are fixedly positioned in a predetermined positional relationship by the positioning member 26 and the fixing members 28 and 29.

The connector plug 12 in accordance with the first embodiment described above can be assembled as follows. First, at the end portions of the optical fibers 10 and 11, the exterior sheath portions 18 and 19 and the interior sheath portion 16 are partly cut off in a stepped form, and the nearly cylindrical main portion 52 of the connecting member 24 is inserted between the exterior sheath portion 18 or 19 and the interior sheath portion 16 from the end portion of the exterior sheath portion 18 or 19. On the other hand, the strand holding pipes 42 and 43 for performing centering of the strands 14 and 15 are forced into the forward end sides 38b and 39b of the ferrules

22 and 23, and thereafter, the forward end collars 40 and 41 are brought into tight engagement with the small diameter portions 50 of the ferrule bodies 38 and 39 and the strand holding pipes 42 and 43. Then, the end portions of the optical fibers 10 and 11 are inserted into the ferrules up to the desired positions from the base end sides 38a and 39a of the ferrule bodies 38 and 39 and positioned such that the strands 14 and 15 are held by the strand holding pipes 42 and 43 and the end portions of the exterior sheath portions 18 and 19 in which the connecting member 24 is inserted are disposed in the base end sides 38a and 39a of the ferrule bodies 38 and 39. If required, the strands 14 and 15 of the optical fibers 10 and 11 may be fixed to the inner walls of the holding pipes 42 and 43 by means of an adhesive. The base end collars 56 and 57 are passed over the forward end sides 38b and 39b and engaged tightly with the base end sides 38a and 39a. Thus, the diameters of the base end sides 38a and 39a are reduced and the exterior sheath portions 18 and 19 of the optical fibers 10 and 11 and the connecting member 24 are fixed to the ferrule bodies 38 and 39.

Subsequently, the positioning member 26 is passed over the forward end collars 40 and 41 of the ferrules 22 and 23 and engaged tightly with the base end sides 38a and 39a of the ferrule bodies 38 and 39 while being in contact with the base end collars 56 and 57. Likewise, the cushioning members 62 and the holding collars 64 and 65 are successively engaged tightly with the ferrule bodies 38 and 39. As a result, the positioning member 26 maintains the two ferrules 22 and 23 and the end portions of the two optical fibers 10 and 11 in a predetermined positional relationship.

Then, the two ferrules 22 and 23 connected by the positioning member 26 are received in the depressed parts of the two portions 30 and 31 of the frame 20 which have a shape conforming to the shape of the ferrules. The two portions 30 and 31 are then connected by two sets of bolts and nuts (not shown).

It is also possible to assemble the connector plug 12 as follows by making the inside diameters of the forward end collars 40 and 41 partly smaller than the outside diameters of the strand holding pipes 42 and 43. As stated above, the exterior sheath portions 18 and 19 and the interior sheath portion 16 are partly cut off in a stepped form, and the main portion 52 of the connecting member 24 is inserted between the exterior sheath portions 18 and 19 and the interior sheath portions 16, respectively. On the other hand, the strand holding pipes 42 and 43 are forced into the forward end sides 38b and 39b of the ferrules 22 and 23. Then, the end portions of the optical fibers 10 and 11 are inserted into the ferrules up to the desired positions from the base end sides 38a and 39a of the ferrule bodies 38 and 39. Thereafter, the forward end collars 40 and 41 are brought into tight engagement with the small diameter portions 50 of the ferrule bodies 38 and 39 and the strand holding pipes 42 and 43 to reduce the

inside diameters of the strand holding pipes 42 and 43 slightly. By this procedure, the strands 14 and 15 of the optical fibers 10 and 11 can be fixedly disposed in the ferrule bodies 38 and 39.

Claims

1. A terminal device for a plurality of optical fibers (10, 11), each fiber having a strand (14) composed of a core and cladding layer, and an external sheath (16, 18); said terminal device comprising:

a plurality of ferrules (22, 23) one disposed at one end of each optical fiber;

a positioning member (26) for positioning the ferrules in a predetermined positional relationship; and

fixing means (28, 29) for fixing the ferrules to the positioning member, characterised in that the fixing means includes a first collar (56, 57) engaging a flange (48, 49) provided at one end of each ferrule and a second collar (64, 65) engaging the ferrule to press the positioning member against the first collar.

2. A terminal device according to claim 1 wherein the strand at said one end of each optical fiber is fixed to a forward end portion of the associated ferrule, and the sheath at said one end of each optical fiber is connected to a base end of the ferrule.

3. A terminal device according to claim 1 or 2 and further comprising a frame (20) supporting the ferrules and a connecting member (24) for securing the sheath of each optical fiber to its respective ferrule.

4. A terminal device according to claim 3, wherein the ferrules are fixedly supported by the frame.

5. A terminal device according to claim 3, wherein the ferrules are movably supported by the frame.

6. A terminal device according to claim 5, wherein the ferrules are elastically supported by the frame.

7. A terminal device according to claim 3, wherein the sheath of each optical fiber is fixedly connected to each respective ferrule by the connecting member, and each ferrule is fixed to the frame.

8. A terminal device according to claim 3, wherein the sheath of each optical fiber is directly fixed to the frame by the connecting member.

9. A terminal device according to claim 3, wherein the sheath of each optical fiber comprises an interior sheath portion (16) and an exterior sheath portion (18); the exterior sheath portion is fixed to the frame by the connecting member; and the strand and the interior sheath portion extend through a hole (58) of the connecting member.

10. A terminal device according to any one of claims 1 to 9, wherein the positioning member has a plurality of holes (60, 61) having inside diameters nearly equal to the outside diameters of the ferrules, and the ferrules are respectively

22 and 23, and thereafter, the forward end collars 40 and 41 are brought into tight engagement with the small diameter portions 50 of the ferrule bodies 38 and 39 and the strand holding pipes 42 and 43. Then, the end portions of the optical fibers 10 and 11 are inserted into the ferrules up to the desired positions from the base end sides 38a and 39a of the ferrule bodies 38 and 39 and positioned such that the strands 14 and 15 are held by the strand holding pipes 42 and 43 and the end portions of the exterior sheath portions 18 and 19 in which the connecting member 24 is inserted are disposed in the base end sides 38a and 39a of the ferrule bodies 38 and 39. If required, the strands 14 and 15 of the optical fibers 10 and 11 may be fixed to the inner walls of the holding pipes 42 and 43 by means of an adhesive. The base end collars 56 and 57 are passed over the forward end sides 38b and 39b and engaged tightly with the base end sides 38a and 39a. Thus, the diameters of the base end sides 38a and 39a are reduced and the exterior sheath portions 18 and 19 of the optical fibers 10 and 11 and the connecting member 24 are fixed to the ferrule bodies 38 and 39.

Subsequently, the positioning member 26 is passed over the forward end collars 40 and 41 of the ferrules 22 and 23 and engaged tightly with the base end sides 38a and 39a of the ferrule bodies 38 and 39 while being in contact with the base end collars 56 and 57. Likewise, the cushioning members 62 and the holding collars 64 and 65 are successively engaged tightly with the ferrule bodies 38 and 39. As a result, the positioning member 26 maintains the two ferrules 22 and 23 and the end portions of the two optical fibers 10 and 11 in a predetermined positional relationship.

Then, the two ferrules 22 and 23 connected by the positioning member 26 are received in the depressed parts of the two portions 30 and 31 of the frame 20 which have a shape conforming to the shape of the ferrules. The two portions 30 and 31 are then connected by two sets of bolts and nuts (not shown).

It is also possible to assemble the connector plug 12 as follows by making the inside diameters of the forward end collars 40 and 41 partly smaller than the outside diameters of the strand holding pipes 42 and 43. As stated above, the exterior sheath portions 18 and 19 and the interior sheath portion 16 are partly cut off in a stepped form, and the main portion 52 of the connecting member 24 is inserted between the exterior sheath portions 18 and 19 and the interior sheath portions 16, respectively. On the other hand, the strand holding pipes 42 and 43 are forced into the forward end sides 38b and 39b of the ferrules 22 and 23. Then, the end portions of the optical fibers 10 and 11 are inserted into the ferrules up to the desired positions from the base end sides 38a and 39a of the ferrule bodies 38 and 39. Thereafter, the forward end collars 40 and 41 are brought into tight engagement with the small diameter portions 50 of the ferrule bodies 38 and 39 and the strand holding pipes 42 and 43 to reduce the

inside diameters of the strand holding pipes 42 and 43 slightly. By this procedure, the strands 14 and 15 of the optical fibers 10 and 11 can be fixedly disposed in the ferrule bodies 38 and 39.

Claims

1. A terminal device for a plurality of optical fibers (10, 11), each fiber having a strand (14) composed of a core and cladding layer, and an external sheath (16, 18); said terminal device comprising:

a plurality of ferrules (22, 23) one disposed at one end of each optical fiber;

a positioning member (26) for positioning the ferrules in a predetermined positional relationship; and

fixing means (28, 29) for fixing the ferrules to the positioning member, characterised in that the fixing means includes a first collar (56, 57) engaging a flange (48, 49) provided at one end of each ferrule and a second collar (64, 65) engaging the ferrule to press the positioning member against the first collar.

2. A terminal device according to claim 1 wherein the strand at said one end of each optical fiber is fixed to a forward end portion of the associated ferrule, and the sheath at said one end of each optical fiber is connected to a base end of the ferrule.

3. A terminal device according to claim 1 or 2 and further comprising a frame (20) supporting the ferrules and a connecting member (24) for securing the sheath of each optical fiber to its respective ferrule.

4. A terminal device according to claim 3, wherein the ferrules are fixedly supported by the frame.

5. A terminal device according to claim 3, wherein the ferrules are movably supported by the frame.

6. A terminal device according to claim 5, wherein the ferrules are elastically supported by the frame.

7. A terminal device according to claim 3, wherein the sheath of each optical fiber is fixedly connected to each respective ferrule by the connecting member, and each ferrule is fixed to the frame.

8. A terminal device according to claim 3, wherein the sheath of each optical fiber is directly fixed to the frame by the connecting member.

9. A terminal device according to claim 3, wherein the sheath of each optical fiber comprises an interior sheath portion (16) and an exterior sheath portion (18); the exterior sheath portion is fixed to the frame by the connecting member; and the strand and the interior sheath portion extend through a hole (58) of the connecting member.

10. A terminal device according to any one of claims 1 to n, wherein the positioning member has a plurality of holes (60, 61) having inside diameters nearly equal to the outside diameters of the ferrules, and the ferrules are respectively



fitted in the holes whereby the ferrules are positioned in the predetermined positional relationship.

11. A terminal device according to any one of claims 1 to 10, wherein the fixing member has an elastic member (62) disposed between the positioning member and the second collar.

12. A terminal device according to claim 1 and further comprising a frame (20) containing the ferrules, the frame being composed of a pair of complementary parts (30, 31) which can be opened to permit access to components within the frame.

13. A terminal device according to claim 12, and further comprising guide means in the frame for angularly guiding the fibers from entry into the frame into the ferrules.

14. A terminal device according to claim 12 or 13 wherein resilient means (62) is provided between the collars and the positioning member and connection means (24) is provided to fix the sheaths to the ferrules.

15. A terminal device according to any one of claims 1 to 14 and embodied as a connector plug for the optical fibers.

16. A terminal device according to any one of claims 1 to 14 and embodied as a connector receptacle for the optical fibers.

Patentansprüche

1. Anschlußvorrichtung für eine Mehrzahl von Lichtleitfasern (10, 11), wobei jede Faser einen Strang (14), der aus einem Kern und einer Hüllschicht besteht, und eine äußere Hülle (16, 18) hat, wobei die Anschlußvorrichtung aufweist:

eine Mehrzahl von Ringteilen (22, 23), von denen eines an einem jeder Lichtleitfaser angeordnet ist,

ein Positionierteil (26) zum Positionieren der Ringteile in einer vorbestimmten positionsmäßigen Zuordnung und Fixiereinrichtungen (28, 29) zum Fixieren der Ringteile an dem Positionierteil, dadurch gekennzeichnet, daß die Fixiereinrichtung einen ersten Bund (56, 57), der mit einem Flansch (48, 49) zusammenarbeitet, der an einem Ende jedes Ringteiles vorgesehen ist, und einen zweiten Bund (64, 65) umfaßt, der mit dem Ringteil zusammenarbeitet, um das Positionierteil gegen den ersten Bund zu drücken.

2. Anschlußvorrichtung nach Anspruch 1, bei der der Strang an diesem einen Ende jeder Lichtleitfaser fest an einem vorliegenden Endabschnitt des zugeordneten Ringteils angebracht ist, und die Umhüllung an diesem einen Ende jeder Lichtleitfaser mit einem Basisende des Ringteils verbunden ist.

3. Anschlußvorrichtung nach Anspruch 1 oder 2, welche ferner einen Rahmen (20) aufweist, der die Ringteile und ein Verbindungsteil (24) zum Festlegen der Umhüllung jeder Lichtleitfaser an dem zugeordneten Ringteil trägt.

4. Anschlußvorrichtung nach Anspruch 3, bei der die Ringteile von dem Rahmen festgehalten werden.

5. Anschlußvorrichtung nach Anspruch 3, bei der die Ringteile durch den Rahmen beweglich gehalten werden.

6. Anschlußvorrichtung nach Anspruch 5, bei der die Ringteile elastisch durch den Rahmen abgestützt sind.

7. Anschlußvorrichtung nach Anspruch 3, bei der die Umhüllung jeder Lichtleitfaser fest mit dem jeweils zugeordneten Ringteil durch das Verbindungsteil verbunden ist und jedes Ringteil fest mit dem Rahmen verbunden ist.

8. Anschlußvorrichtung nach Anspruch 3, bei der die Umhüllung jeder Lichtleitfaser direkt fest mit dem Rahmen mittels des Verbindungsteils verbunden ist.

9. Anschlußvorrichtung nach Anspruch 3, bei der die Umhüllung jeder Lichtleitfaser einen inneren Umhüllungsabschnitt (16) und einen äußeren Umhüllungsabschnitt (18) aufweist, der äußere Umhüllungsabschnitt fest mit dem Rahmen mittels des Verbindungsteils verbunden ist, und der Strang und der innere Umhüllungsabschnitt durch eine Öffnung (58) des Verbindungsteils gehen.

10. Anschlußvorrichtung nach einem der Ansprüche 1 bis 9, bei der das Positionierteil eine Mehrzahl von Öffnungen (60, 61) hat, die Innendurchmesser nahezu gleich den Außendurchmessern der Ringteile haben und die Ringteile jeweils passend in Öffnungen eingesetzt sind, wodurch die Ringteile in einer vorbestimmten positionsmäßigen Zuordnung angeordnet sind.

11. Anschlußvorrichtung nach einem der Ansprüche 1 bis 10, bei der das Fixierteil ein elastisches Teil (62) hat, das zwischen dem Positionierteil und dem zweiten Bund angeordnet ist.

12. Anschlußvorrichtung nach Anspruch 1, welche ferner einen Rahmen (20) aufweist, der die Ringteile enthält, und sich der Rahmen aus einem Paar von komplementären Teilen (30, 31) zusammensetzt, welche sich öffnen lassen, um Zugang zu den Komponenten in dem Rahmen zu haben.

13. Anschlußvorrichtung nach Anspruch 12, welche ferner eine Führungseinrichtung in dem Rahmen zur Winkelführung der Fasern von der Eintrittsseite in den Rahmen und in die Ringteile aufweist.

14. Anschlußvorrichtung nach Anspruch 12 oder 13, bei der eine Federeinrichtung (62) zwischen den Bunden und dem Positionierteil vorgesehen sind und bei der Verbindungseinrichtungen (24) zur Fixierung der Umhüllungen an den Ringteilen vorgesehen sind.

15. Anschlußvorrichtung nach einem der Ansprüche 1 bis 14, welche als ein Verbindungsstecker für die Lichtleitfasern ausgelegt ist.

16. Anschlußvorrichtung nach einem der Ansprüche 1 bis 14, welche als ein Verbinderaufnahmegehäuse für die Lichtleitfasern ausgelegt ist.

Revendications

1. Dispositif d'extrémité pour plusieurs fibres optiques (10, 11), chaque fibre ayant un brin (14)



formé d'une âme et d'une couche de revêtement, dans une gaine externe (16, 18), ce dispositif d'extrémité comprenant:

plusieurs embouts (22, 23) dont l'un est disposé à une extrémité de chaque fibre optique;

un organe de positionnement (26) pour positionner les embouts dans une position relative prédéterminée; et

des moyens de fixation (28, 29) pour fixer les embouts sur l'organe de positionnement, caractérisé en ce que les moyens de fixation comprennent un premier collier (56, 57) en contact avec une bride (48, 49) prévue à une extrémité de chaque embout et un second collier (64, 65) en contact avec l'embout pour presser l'organe de positionnement contre le premier collier.

2. Dispositif d'extrémité suivant la revendication 1, dans lequel le brin à ladite extrémité de chaque fibre optique est fixé à une partie d'extrémité avant de l'embout associé, et la gaine à ladite extrémité de chaque fibre optique est reliée à une extrémité arrière de l'embout.

3. Dispositif d'extrémité suivant les revendications 1 ou 2, et comprenant en outre un corps (20) portant les embouts et un organe de liaison (24) pour fixer la gaine de chaque fibre optique à son embout respectif.

4. Dispositif d'extrémité suivant la revendication 3, dans lequel les embouts sont portés par le corps de façon fixe.

5. Dispositif d'extrémité suivant la revendication 3, dans lequel les embouts sont portés de façon mobile par le corps.

6. Dispositif d'extrémité suivant la revendication 5, dans lequel les embouts sont portés par le corps de façon élastique.

7. Dispositif d'extrémité suivant la revendication 3, dans lequel la gaine de chaque fibre optique est reliée de façon fixe à chaque embout respectif par l'organe de liaison, et chaque embout est fixé sur le corps.

8. Dispositif d'extrémité suivant la revendication 3, dans lequel la gaine de chaque fibre optique est fixée directement sur le corps par l'organe de liaison.

9. Dispositif d'extrémité suivant la revendication 3, dans lequel la gaine de chaque fibre optique comprend une gaine interne (16) et une gaine externe (18); la gaine externe est fixée sur le corps par l'organe de liaison; et le brin et la gaine interne s'étendent à travers un trou (58) de l'organe de liaison.

10. Dispositif d'extrémité suivant l'une quelconque des revendications 1 à 9, dans lequel l'organe de positionnement comporte plusieurs trous (60, 61) ayant des diamètres internes presque égaux aux diamètres externes des embouts, et les embouts sont ajustés respectivement dans les trous grâce à quoi les embouts sont positionnés dans une position relative prédéterminée.

11. Dispositif d'extrémité suivant l'une quelconque des revendications 1 à 10, dans lequel l'organe de fixation comporte un élément élastique (62) disposé entre l'organe de positionnement et le second collier.

12. Dispositif d'extrémité suivant la revendication 1 et comprenant en outre un corps (20) contenant les embouts, le corps étant formé de deux parties complémentaires (30, 31) qui peuvent être ouvertes pour permettre d'accéder aux composants à l'intérieur du corps.

13. Dispositif d'extrémité suivant la revendication 12, et comprenant en outre des moyens de guidage dans le corps pour guider angulairement les fibres, depuis l'entrée dans le corps, dans les embouts.

14. Dispositif d'extrémité suivant les revendications 12 ou 13, dans lequel un dispositif élastique (62) est prévu entre les colliers et l'organe de positionnement, et des moyens de liaison (24) sont prévus pour fixer les gaines aux embouts.

15. Dispositif d'extrémité suivant l'une quelconque des revendications 1 à 14, et intégré en tant que fiche de connecteur pour fibres optiques.

16. Dispositif d'extrémité suivant l'une quelconque des revendications 1 à 14, et intégré en tant que réceptacle de connecteur pour des fibres optiques.

