



New connection on: : 15-10-2020 : 21:30:58 - Last disconnection on: : 13-10-2020 : 22:59:09

V 4.0.0.44803(LP,U,linux) (Rev:43856 2017-04-27 09:03:29 +0200#{D201820}) (RPM D201820)

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[No database/cluster active] ..fi

Select a database: ..FI EPODOC

☐ Database: EPODOC

[EPODOC: SS 1] (optical_fiber) and (enclosure or housing) and cap and tray and bushing and /ic(G01M)

Results in EPODOC 0

[SS 2] (optical_fiber) and (enclosure or housing) and cap and tray and bushing

The joint operator has to be between two (un) truncated terms. ERROR(-50053)

[SS 2] (optical_fiber) and (enclosure or housing) and cap and tray and bushing

Results in EPODOC 0

[SS 3] (optical_fiber) and (enclosure or housing) and bushing

Results in EPODOC 41

[SS 4] ..li



1/41 © EPODOC / EPO

PN - [CN209707766U](#) U 20191129

PR - CN201920547550U 20190422

AP - [CN201920547550U](#) 20190422

DT - I

PA - SICHUAN HUIYUAN INFORMATION TECH CO LTD

TI - Outdoor optical cable connector with flame-retardant mechanism

AB - The utility model discloses an outdoor optical cable connector with a flame-retardant mechanism. Included are a **housing** and a flame retardant mechanism, an **optical fiber** is arranged in the shell; the outer side of the **optical fiber** is wrapped and fixed with

a **bushing**; the outer side of the **bushing** is wrapped and fixed with a sealing sleeve; the end part of the sealing sleeve is fixedly connected with a locking nut; the locking nut is installed in the shell, the flame-retardant mechanism comprises a protective sleeve, the protective sleeve wraps and is fixed to the outer side of the shell, a square groove is formed in the protective sleeve, a connecting hole is formed in the outer side of the square groove, the square groove and the connecting hole are communicated with each other, and flame-retardant liquid is arranged in the square groove; by designing the protective sleeve, the square groove and the flame-retardant liquid, the problem that an existing optical cable connector does not have a flame-retardant function, and huge loss is caused by accidents such as fire disasters is solved, the flame-retardant liquid is arranged in the square groove of the protective sleeve in advance, and the protective sleeve wraps the outer side of the optical cable connector, so that flame retardance can be effectively performed on the optical cable connector.

2/41 © EPODOC / EPO

PN - [CN208708183U](#) U 20190409
 PR - CN201821289188U 20180810
 AP - [CN201821289188U](#) 20180810
 DT - I
 PA - SHANDONG SHUNYANG MACHINERY CO LTD
 TI - A harvester working part spare for plucking olive and analog
 AB - The utility model discloses a harvester working part spare for plucking olive and analog, the **optical fiber** protection device comprises a protection **housing**, the transmission shaft, eccentric wheel component, a spindle sleeve, the transfer line, the connecting piece with beat the harrow device, the protective **housing** comprises two and half shells, the die joint joint forms an inclosed cavity space, eccentric wheel component installs at the protective **housing** middle part, by the eccentric wheel, eccentric wheel connecting rod composition, the transmission shaft is installed and is held in the protective **housing** handle, through transmission shaft bonded eccentric wheel with drive eccentric wheel rotate, **bushing** installation is in the top of protective **housing** cavity, with the mutual clearance fit of transfer line, the transfer line is connected with the eccentric wheel connecting rod in the cavity, the casing is outer to be connected with the connecting piece, two ears of protective **housing** end is equipped with connecting portion, through connecting portion with beat harrow attachment of apparatus point connection, the connecting piece is connected with the pin joint portion of beaing the harrow device. The utility model relates to a rationally, stability height, long service life, low in manufacturing cost be honest and clean, can regard as vibrating harvester working part sparewide application in agricultural machinery.

3/41 © EPODOC / EPO

PN - [CN108802910A](#) 20181113
 PR - CN201710292130 20170428
 AP - [CN201710292130](#) 20170428
 DT - I
 CT - // STSE (A)
[CN1374540A](#) 20021016 [Y] (HIROSE ELECTRIC CORP [JP])
 [Y] 10
 * 说明书第3页倒数第5行到第8页最后1行和附图1-4 *;
 CN202351462U U 20120725 [Y] (CHENGDU CORNING OPTICAL FIBER CABLE CO LTD)

[Y] 3-5

* 说明书第0016-0018段和附图1-3 *;

[CN103823277](#) A 20140528 [Y] (BWT BEIJING LTD)

[Y] 6

* 说明书第0027-0054段和附图1-8 *;

[CN106125208](#) A 20161116 [Y] (ZHONGTIAN OCEAN SYSTEM CO LTD)

[Y] 1-10

* 说明书第0012-0014段和附图1 *;

[CN206133068U](#) U 20170426 [Y] (ZHONGTIAN TECH MARINE SYSTEMS CO LTD)

[Y] 1-10

* 说明书第0024-0044段和附图1-2 *;

[CN102436040](#) A 20120502 [Y] (FEMTO TECHNOLOGY XI AN CO LTD)

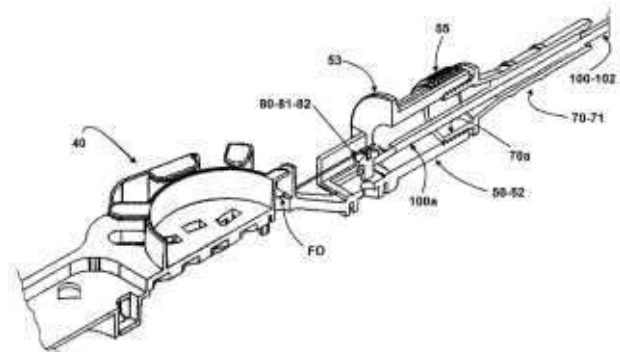
[Y] 1-9

* 说明书第0027-0042和附图1-9 *

- CI - G02B6/3807 (CN)
- G02B6/3887 (CN)
- PA - ZHONGTIAN TECH MARINE SYSTEMS CO LTD; JIANGSU ZHONGTIAN TECHNOLOGY CO LTD
- TI - Optical connector
- AB - The invention provides an optical connector. The optical connector comprises a fixing assembly and a connecting assembly; the connecting assembly is accommodated in the fixing assembly; the fixing assembly comprises a **housing** and a locking nut, wherein the locking nut is fastened to one end of the **housing**; the connecting assembly comprises an **optical fiber bushing** and a collimator, wherein the collimator is connected with the **optical fiber bushing**; and the **optical fiber bushing** and the collimator are installed in the **housing**. The optical connector provided by the invention has the advantages of low cost, compact structure and high cost performance. According to the optical connector, the collimator is arranged at the tail end of the **optical fiber**, and therefore, the transmission quality of optical signals can be improved.

4/41 © EPODOC / EPO

- PN - [US2018164523](#) A1 20180614
- PNFP - [US10234647](#) B2 20190319
- PR - [BR20161029000](#) 20161209
- AP - [US201715837796](#) 20171211
- DT - *; Rep
- CT - || R141 (A1)
[US5402515](#) A 19950328 []
(VIDACOVICH KENNETH J [US], et al);
[US5481639](#) A 19960102 [] (COBB
GARY S [US], et al);
[US6974262](#) B1 20051213 []
(RICKENBACH ROBERT [US]);
[US2006032659](#) A1 20060216 []
(ALLEN WILLIAM G [US], et al);
[US2009046985](#) A1 20090219 []
(GRONVALL ERIK [US], et al);
[US2009060421](#) A1 20090305 []
(PARIKH RUTESH D [US], et al);
[US2009238531](#) A1 20090924 []



(HOLMBERG MATTHEW [US], et al);
[US2009297112](#) A1 20091203 []
 (MERTESDORF DANIEL RAY [US], et al);
[US8213761](#) B2 20120703 []
 (GRONVALL ERIK [US], et al);
[US8422846](#) B2 20130416 [] (RUIZ GIL [US], et al);
[US2013101262](#) A1 20130425 [] (WEI JIAN [CN], et al);
[US2013209049](#) A1 20130815 []
 (KOWALCZYK SCOTT C [US], et al);
[US2015286022](#) A1 20151008 []
 (HOLMBERG MATTHEW [US], et al);
[US2016202441](#) A1 20160714 []
 (CLAESSENS BART MATTIE [BE], et al);
[US9513451](#) B2 20161206 []
 (CORBILLE CHRISTOPHE [FR], et al);
[US2017063470](#) A1 20170302 []
 (SMITH TREVOR D [US], et al);
[WO2009089327](#) A2 20090716 []
 (ADC TELECOMMUNICATIONS INC [US], et al)
 - || STSE (B2)
[US5402515](#) A 19950328 []
 (VIDACOVICH KENNETH J [US], et al);
[US5481639](#) A 19960102 [] (COBB GARY S [US], et al);
[US6974262](#) B1 20051213 []
 (RICKENBACH ROBERT [US]) ;
[US8213761](#) B2 20120703 []
 (GRONVALL ERIK [US], et al);
[US8422846](#) B2 20130416 [] (RUIZ GIL [US], et al);
[US9513451](#) B2 20161206 []
 (CORBILLE CHRISTOPHE [FR], et al);
[US2006032659](#) A1 20060216 []
 (ALLEN WILLIAM G [US], et al);
[US2009046985](#) A1 20090219 []
 (GRONVALL ERIK [US], et al);
[US2009060421](#) A1 20090305 []
 (PARIKH RUTESH D [US], et al);
[US2009238531](#) A1 20090924 []
 (HOLMBERG MATTHEW [US], et al);
[US2009297112](#) A1 20091203 []
 (MERTESDORF DANIEL RAY [US], et al);
[US2013101262](#) A1 20130425 [] (WEI JIAN [CN], et al);
[US2013209049](#) A1 20130815 []
 (KOWALCZYK SCOTT C [US], et al);

[US2015286022](#) A1 20151008 []
 (HOLMBERG MATTHEW [US], et al);
[US2016202441](#) A1 20160714 []
 (CLAESSENS BART MATTIE [BE], et al);
[US2017063470](#) A1 20170302 []
 (SMITH TREVOR D [US], et al);
[WO2009089327](#) A2 20090716 []
 (ADC TELECOMMUNICATIONS INC [US], et al)

- | | |
|-----|---|
| CCI | - G02B6/4441 ; G02B6/4444 ;
G02B6/4471 |
| CCA | - G02B6/3897 |
| CI | - G02B6/4441 (EP, ES, US)
- G02B6/4444 (EP, US)
- G02B6/4471 (EP, US) |
| CA | - G02B6/3897 (EP, US) |
| PA | - (A1 B2)
FURUKAWA ELECTRIC LATAM S A
[BR] |
| TI | - (A1)
OPTICAL TERMINATION BOX
- (B2)
Optical termination box |
| AB | - (A1 B2)
An optical termination box comprising: a tubular housing (10) with an open end (10b) and a closed end (10a) provided with an input opening (11) for an optical distribution cable (100); a cover (20) securable against the open end (10b) of the housing (10) and pierced by output adapters (30); and an optical fiber accommodating tray (40), internal to the tubular housing (10) and having a first end (41) carrying a tubular bushing (50) with a base portion (51) seated against the closed end (10a) of the tubular housing (10), and a projecting body portion (52) out of the input opening (11), to cooperate with a puller (60) that holds the tubular bushing (50) hermetically pressed against the closed end (10a) of the tubular housing (10). The tubular bushing (50) hermetically |

receives and retains an end portion (100a) of an optical distribution cable (100) containing at least one **optical fiber** (FO).

5/41 © EPODOC / EPO

PN - [US2018059351](#) A1 20180301

PNFP - US9971116 B2 20180515

PR - US201715687072
20170825; US201662380260P
20160826

AP - [US201715687072](#) 20170825

DT - *; Rep

CT - || STSE (B2)
[US7263265](#) B2 20070828 []
(GRUBISH CHRISTOPHER S [US], et al);
[US9217834](#) B2 20151222 []
(YOSHIKAWA SATOSHI [JP])

CCI - [B23K26/702](#) ; [G02B6/4457](#)

CCA - [G02B6/444](#) ; [H01S3/0404](#) ;
[H01S3/06704](#) ; [H01S5/02](#) ;
[H01S5/02284](#)

CI - B23K26/702 (EP, US)
- G02B6/4446 (US)
- G02B6/4448 (US)
- G02B6/4457 (EP, US)

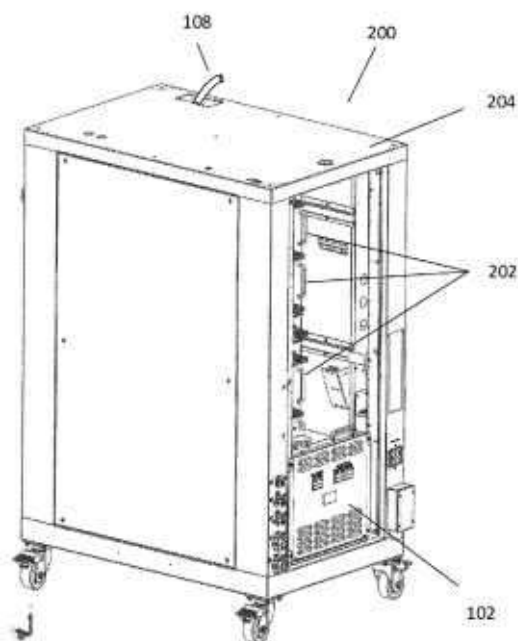
CA - G02B6/444 (EP, US)
- H01S3/0404 (EP)
- H01S3/06704 (EP)
- H01S5/02 (EP)
- H01S5/02284 (EP)

PA - (A1)
NLIGHT INC [US]
- (B2)
NLIGHT INC [US]; NLIGHT
INCORPORATED [US]

TI - (A1)
LASER **OPTICAL FIBER** TRAY
- (B2)
Laser **optical fiber** tray

AB - (A1 B2)
A laser **optical fiber** tray is generally presented. In some embodiments, the **optical fiber** tray comprises an **enclosure** having an opening in a bottom of

100

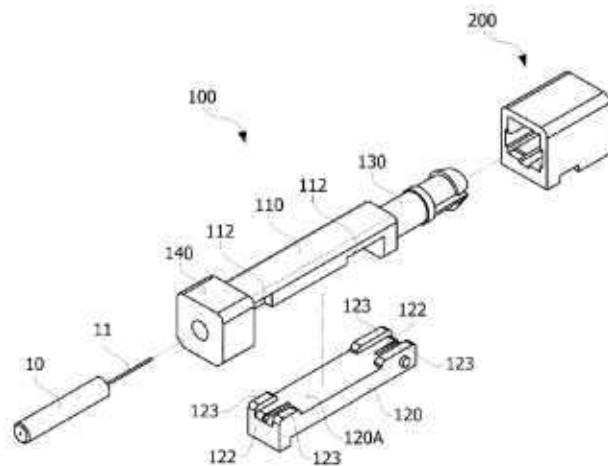


the **enclosure** to accept a feeding fiber exiting from a top of a laser system rack, an opening in a side of the **enclosure** to allow passage of the feeding fiber out of the **enclosure**, a removable panel to allow access to an interior of the **enclosure** and two or more coil guides affixed within the interior of the **enclosure**, the coil guides spaced apart by a distance that defines a minimum diameter for a loop of the feeding fiber to be contained within the **enclosure**. In some embodiments, the **optical fiber** tray is mounted to a top panel of the laser system rack. In some embodiments, the **optical fiber** tray is mounted to a top panel of an external module which is mounted to a top panel of the laser system rack. Other embodiments are also disclosed and claimed.

TXT - **optical fiber** tray 300 may include feeding fiber 402, side fiber opening 404, split **bushing** 406, inner coil guides 408, outer coil guides 410, minimum coil diameter 412; ties 414 may represent hook and loop ties

6/41 © EPODOC / EPO

PN - [RU2015146309](#) A 20170503
 PNFP - RU2624398 C2 20170703
 PR - KR20150066662
 20150513; WO2015KR04819
 20150514
 AP - [RU20150146309](#) 20150514
 DT - I
 CT - // STSE (C2)
[RU2451956](#) C2 20120527 [] (3M
 INNOVATIVE PROPERTIES CO [US]);
[JP2011112749](#) A 20110609 []
 (AUTONETWORKS TECHNOLOGIES
 LTD, et al);
 JP5255540B B2 20130807 [];
 KR101440580B B1 20140917 [];
 CN202025108U U 20111102 []



(DONGGUAN ZHONGTIAN OPTICAL
FIBER EQUIPMENT TECHNOLOGY CO
LTD)

CCI - [G02B6/3846](#)

CCA - [G02B6/3855](#) ; [G02B6/3869](#)

CI - G02B6/3846 (EP)
- G02B6/387 (US)
- G02B6/3887 (US)

CA - G01D5/353 (RU)
- G02B6/36 (RU)
- G02B6/3855 (EP)
- G02B6/3869 (EP)

PA - (C2)
EJ DZHEJ UORLD KO LTD [KR]

TI - (C2)
OPTICAL CONNECTOR

AB - (C2)
FIELD: physics.SUBSTANCE: optical connector comprises a **housing** including a contact part, the first and the second insertion part, a cover having an outer surface, on which a protruding blocking area is formed, and a holder that is slidably inserted into the contact part and the cover. The contact part serves to ensure contact of the **bushing optical fiber** with the **optical fiber** of the fiber-optic cable. The first insertion part, into which the fiber-optic cable is inserted, may be located behind the contact part, and the second insertion part, into which the sleeve is immovably inserted, may be located in front of the contact part.EFFECT: providing an optical connector capable of minimizing damage to the fiber-optic cable and minimizing deformation of the contact part and the cover during the installation of the fiber-optic cable.10 cl, 14 dwg

7/41 © EPODOC / EPO

PN - [CN105318986](#) A 20160210

PR - CN201410286840 20140625

AP - [CN201410286840](#) 20140625

DT - I

PA - LI PENGFEI

TI - Probe-type FBG temperature sensor for measuring oil temperature of transformer

AB - The present invention provides a probe-type FBG temperature sensor for measuring the oil temperature of a transformer. The present invention belongs to the technical field of photoelectron measurement devices. The temperature sensor comprises a polymer sensitivity-increasing packaging material (1) with a high expansion factor, a high-temperature ceramic (2), a quartz packaging unit (3), a fastener connecting interface (4), a connecting **bushing** MIL-C-85723 (5), an **optical-fiber** pin connection head (6), a stainless steel **housing** (7), a polytetrafluoroethylene **bushing** (8), an **optical fiber** Bragg grating (9), and a leading-out **optical fiber** (10). The **optical fiber** Bragg grating (9) and the leading-out **optical fiber** (10) are melted together, and then are sleeved by the polytetrafluoroethylene **bushing** (8) for protection. The polymer sensitivity-increasing packaging material (1) with a high expansion factor is used for the packaging of the **optical fiber** Bragg grating (9), and the exterior of the **optical fiber** Bragg grating (9) is wrapped by the high-temperature ceramic (2), and then the **optical fiber** Bragg grating (9) is closely fixed in the stainless steel **housing** (7) through the quartz packaging unit (3), thereby protecting the **optical fiber** Bragg grating (9) from bearing external extruding and collision, and improving the internal stability. The fastener connecting interface (4) can be conveniently connected with an external **optical fiber**.

8/41 © EPODOC / EPO

PN - [KR101532512B](#) B1 20150629

PR - KR20140037565 20140331

AP - [KR20140037565](#) 20140331

DT - I

CT - // STSE (B1)
[JP2009017102](#) A 20090122 [] (SEKISUI HOUSE KK);
[JP2012186700](#) A 20120927 [] (SONY CORP);
KR101068766B B1 20110930 [] (DAEWOO ENG & CONSTR CO LTD [KR], et al);
KR101187108B B1 20120928 [] (KIM HYUN JU [KR])

CI - H04R1/02 (KR)
- H04R9/02 (KR)

CA - H04R2201/021 (KR)

PA - KWAK WON TAEK [KR]

TI - WIRELESS SPEAKER INTALLED IN BATHROOM

AB - The present invention relates to a wireless speaker installed in a bathroom. The wireless speaker comprises: a **housing**, which is embedded in a ceiling member of a bathroom and includes a receiving part having an opening formed therein toward the bathroom; a **bushing**, which is coupled with one side of an outer side surface of the **housing** and is provided between the **housing** and the ceiling member; a speaker, which is coupled with the receiving part to allow sound to be transferred toward the bathroom; and a protective cover, which is coupled through a screw with the opening of the receiving part receiving the speaker. According to the present invention, the wireless speaker may be conveniently installed at the bathroom, and it is unnecessary to install an additional transmitting/receiving wire route because the sound source is received through wireless communication. Also, the wireless speaker may provide sound and light and be safely protected from moisture in the bathroom. Particularly, the wireless speaker is detachably installed in the **housing** having a double structure in order to

minimize noise through floors, which may be generated because the speaker is installed in the bathroom, thereby restricting the generation of noise through floors and achieving easy replacement and maintenance of the speaker. An **optical fiber** light is included in one side of the wireless speaker to allow the state of the speaker being turned on/off to be easily checked and may be used as an indirect light, thereby improving the interior design of the bathroom.

9/41 © EPODOC / EPO

PN - [CN204065474U](#) U 20141231
 PR - CN201420435743U 20140805
 AP - [CN201420435743U](#) 20140805
 DT - I
 PA - SUZHOU TFC OPTICAL COMM CO LTD
 TI - Low-cost receiver optical subassembly
 AB - The utility model discloses a low-cost receiver optical subassembly. The low-cost receiver optical subassembly comprises a **housing**, a plugging core, an **optical fiber** and a **bushing**; and the **housing** is cylindrical, the **housing** is provided with a through groove penetrating the **housing** in the axial direction, the **housing** is provided with a first barrel body, a second barrel body and a third barrel body which are disposed from left to right, the outer diameter of the first barrel body is less than the outer diameter of the second barrel body, the outer diameter of the third barrel body is less than the outer diameter of the first barrel body, the **bushing** is accommodated in the through groove of the **housing**, at least part of the plugging core is accommodated in the **bushing**, part of the plugging core further extends to the left and exceeds the **housing**, the **optical fiber** is disposed in the plugging core, a gap is disposed between the plugging core and the **housing**, and the gap is filled with an insulation colloid. The **housing** has a one-body structure, a rear cover is omitted, and production cost is lowered.

10/41 © EPODOC / EPO

PN - [CN204027725U](#) U 20141217
 PR - CN201420340518U 20140625
 AP - [CN201420340518U](#) 20140625
 DT - I
 PA - LI PENGFEI
 TI - Probe-type FBG temperature sensor for measuring oil temperature of transformer
 AB - The name of the utility model is a probe-type FBG temperature sensor for measuring the oil temperature of a transformer. The utility model belongs to the technical field of photoelectron measurement devices. The temperature sensor comprises a polymer sensitivity-increasing packaging material (1) with a high expansion factor, a high-temperature ceramic (2), a quartz packaging unit (3), a fastener connecting interface (4), a connecting **bushing** MIL-C-85723 (5), an **optical-fiber** pin connection head (6), a stainless steel **housing** (7), a polytetrafluoroethylene **bushing** (8), an **optical fiber** Bragg grating (9), and a leading-out **optical fiber** (10). The **optical fiber** Bragg grating (9) and the leading-out **optical fiber** (10) are melted together, and then are sleeved by the polytetrafluoroethylene **bushing** (8) for protection. The polymer sensitivity-increasing packaging material (1) with a high expansion factor is used for the packaging of the **optical fiber** Bragg grating (9), and the exterior of the **optical fiber** Bragg grating (9) is wrapped by the high-temperature ceramic (2), and then the **optical fiber** Bragg grating (9)

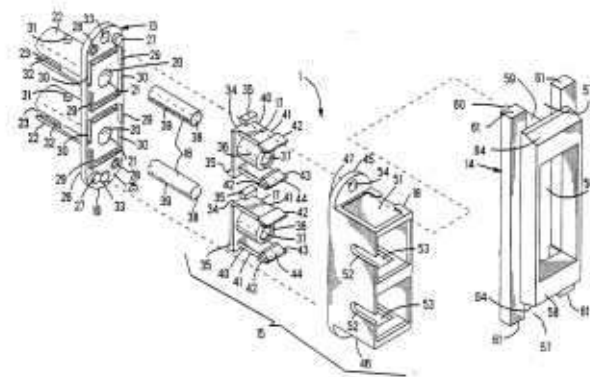
is closely fixed in the stainless steel **housing** (7) through the quartz packaging unit (3), thereby protecting the **optical fiber** Bragg grating (9) from bearing external extruding and collision, and improving the internal stability. The fastener connecting interface (4) can be conveniently connected with an external **optical fiber**.

11/41 © EPODOC / EPO

- PN - [CN203337860U](#) U 20131211
- PR - CN201320271373U 20130517
- AP - [CN201320271373U](#) 20130517
- DT - I
- PA - CHINA AVIAT OPTICAL ELEC TECH
- TI - Anti-separation laser ignition **optical fiber** connector
- AB - The utility model relates to the field of optical connectors, particularly to an anti-separation laser ignition **optical fiber** connector. The connector comprises a **housing** and an optical pin module that is fixedly assembled inside the **housing**. The optical pin module comprises an optical pin in the front and a **bushing** in the back. The **housing** is provided with a fixing structure used for being in fixed cooperation with an initiation device. Since the **housing** is provided with the fixing structure used for being in fixed cooperation with the initiation device, while the connector is used, the fixing structure can be utilized to fixing the whole **housing** on the corresponding ignition initiation device. Under such conditions, even though the gunpowder is exploded, the connector is tightly fixed on the initiation device instead of flying out, so that a problem that the conventional **optical fiber** connector used for the initiation device is poor in safety performance is overcome.

12/41 © EPODOC / EPO

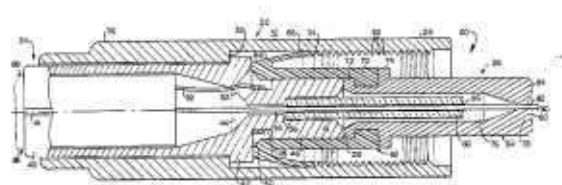
- PN - [US5142597](#) A 19920825
- PR - US19920866283
19920410; US19900558933 19900727
- AP - [US19920866283](#) 19920410
- DT - *, Rep
- CT - || STSE (A)
[US4611887](#) A 00000000 [];
[US4762388](#) A 00000000 [];
[US4762389](#) A 00000000 [];
[US4872736](#) A 00000000 [];
[US4960317](#) A 00000000 [];
[EP0330399](#) A1 00000000 [];
JPS6021893 A 00000000 [];
JPS6226141 A 00000000 []
- CCI - [G02B6/3874](#) ; [G02B6/3878](#) ;
[G02B6/389](#) ; [G02B6/3897](#) ;
[G02B6/4466](#)
- CCA - [G02B6/3851](#)
- CI - [G02B6/3874](#) (EP)
[G02B6/3878](#) (EP)
[G02B6/389](#) (EP)
[G02B6/3897](#) (EP)



- G02B6/4466 (EP)
- CA - G02B6/3851 (EP)
- PA - AMP INC [US]
- TI - Interconnect assembly for wall outlet
- AB - An interconnect assembly 1 includes an adapter assembly 15, a coupling **bushing** 13 and an insert 14. The assembly 1 is situated within a wall outlet 2 having a hood assembly 4 with an aperture 8 for receiving therethrough a plug terminated **optical fiber** cable. The plug is received through the aperture 8 and interconnected by means of the interconnect assembly 1 with a second **optical fiber** cable. The assembly 1 comprises a receptacle **housing** 18 having at least one forward extending compartment structure 46, open at a front receiving face and a receptacle 17 within the **housing** 18 for receiving the first optical cable within the compartment structure 46 for connection to the plug terminating the first **optical fiber** cable. The assembly 1 further comprises an insert 13 with a guide port 56. The guide port 56 receives the forward extending compartment structure 46 of the receptacle **housing** 18 with the receptacle 17. The insert 13 further includes connecting means for securing the insert 13 to the hood assembly 4 of the wall outlet 2.

13/41 © EPODOC / EPO

- PN - [US4681398](#) A 19870721
- PR - US19850808687
19851217; US19830455400 19830103
- AP - [US19850808687](#) 19851217
- DT - *; Rep
- CT - || STSE (A)
[US3963308](#) A 00000000 [];
[US3995935](#) A 00000000 [];



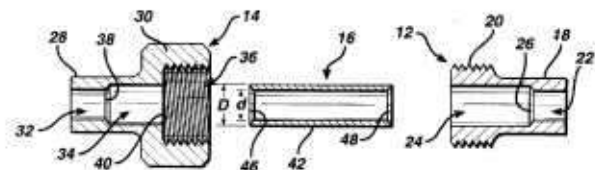
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[US4105285](#) A 00000000 [];
[US4148554](#) A 00000000 [];
[US4158476](#) A 00000000 [];
[US4162821](#) A 00000000 [];
[US4166668](#) A 00000000 [];
[US4201445](#) A 00000000 [];
[US4220398](#) A 00000000 [];
[US4257674](#) A 00000000 [];
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[US4341439](#) A 00000000 [];
[US4362356](#) A 00000000 [];
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[US4447120](#) A 00000000 [];
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[DE2910860](#) A1 00000000 [];
JPH10756 A 00000000 []

- CTNP - *// STSE (A)*
[] - Grune et al., IBM Tech. Disc. Bull., vol. 27, No. 27A, Dec. 1984, Fiber Optic Connector p. 3716.
[] - International Fiber Optics and Communications, vol. 1, No. 5, Sep. 1980, Epoxy Resin for Terminating PCS Fibers p. 73.
- CCI - [G02B6/245](#) ; [G02B6/25](#) ;
[G02B6/3825](#) ; [G02B6/3834](#) ;
[G02B6/3861](#) ; [G02B6/3869](#) ;
[G02B6/3887](#)
- CCA - [G02B6/3894](#)
- CI - G02B6/245 (EP)
- G02B6/25 (EP)
- G02B6/3825 (EP)
- G02B6/3834 (EP)
- G02B6/3861 (EP)
- G02B6/3869 (EP)
- G02B6/3887 (EP)
- CA - G02B6/3894 (EP)
- PA - SWITCHCRAFT [US]
- TI - Fiber optic connector and method of assembly
- AB - A fiber optic connector comprising a coupling shell encircling a glass end portion of a **bushing** disposed axially within

an encircling ferrule having an end portion extended axially out of the shell and terminating in a dish-shaped end surface provided with a central aperture through which an **optical fiber** element extending axially through the glass end portion of the **bushing** and the ferrule protrudes to terminate at a planar end surface spaced axially from the aperture, the dish-shaped end surface being curved concavely and continuously from the aperture radially to a circular rim which is spaced a greater axial distance from the aperture than the planar end surface of the **optical fiber** element. The method of assembling the fiber optic connector onto the **optical fiber** element including the steps of securing the glass end portion of the **bushing** to a body portion thereof with bonding material insensitive to ultraviolet light and securing the **optical fiber** element to the glass end portion with bonding material sensitive to ultraviolet light. A fiber optic junction assembly comprising two of the fiber optic connectors having the circular rims of their respective dish-shaped end surfaces disposed in abutting relationship and forming a biconvex **enclosure** wherein the planar end surfaces of the respective **optical fiber** elements are disposed in axial spaced alignment with one another.

14/41 © EPDOC / EPO

PN - [US5751874](#) A 19980512
 PR - US19960714797 19960913
 AP - [US19960714797](#) 19960913
 DT - *, Rep
 CT - || STSE (A)
[US4991929](#) A 00000000 [];
[US5082345](#) A 00000000 [];



	US5408557 A 00000000 [];
	US5452390 A 00000000 []
CCI	- G02B6/266 ; G02B6/3825 ; G02B6/4292
CCA	- G02B6/3877
CI	- G02B6/266 (EP) - G02B6/3825 (EP) - G02B6/4292 (EP)
CA	- G02B6/3877 (EP)
PA	- NUVISIONS INTERNATIONAL INC [US]
TI	- Coupling device for linking optical fiber connectors
AB	- A universal coupling device compatible with several industry-standard fiber optic connector styles to releasably couple the axial ferrule of one such connector in optical communication with the ferrule of another connector of the same or different style, or with the connector port of industry-standard test equipment. The device includes a split-spring bushing for receiving, in frictional engagement, a standard ferrule in either or both ends, and housing means defining a cavity closely surrounding the bushing and having coaxial bores aligned with the bushing. The housing means is formed in two sections, mutually engageable by threaded or snap-fit connection. A spacer member may be positioned in the bushing to provide an air gap for controlled attenuation of light passing through the fibers of ferrules coupled by the device.

PN - [US2004136679](#) A1 20040715

PNFP - US6922518 B2 20050726

PR - US20030689867
20031021; US20030476668P
20030605; US20020433320P
20021213

AP - [US20030689867](#) 20031021

DT - **

CT - || R141 (A1)
[US4904046](#) A 19900227 [] (PASCHKE
HARTMUT [DE], et al);
[US2004037509](#) A1 20040226 []
(WISECARVER MARTIN [US]) ;
[US6355362](#) B1 20020312 [] (JONES
HERMAN L [US], et al);
[US5631990](#) A 19970520 []
(HASHIZUME HIDEKI [JP]);
[US4752109](#) A 19880621 []
(GORDON EUGENE I [US], et al);
[US6284389](#) B1 20010904 [] (JONES
HERMAN L [US], et al)
- || STSE (B2)
[US4752109](#) A 19880621 []
(GORDON EUGENE I [US], et al);
[US4904046](#) A 19900227 [] (PASCHKE
HARTMUT [DE], et al);
[US5631990](#) A 19970520 []
(HASHIZUME HIDEKI [JP]);
[US2004037509](#) A1 20040226 []
(WISECARVER MARTIN [US])

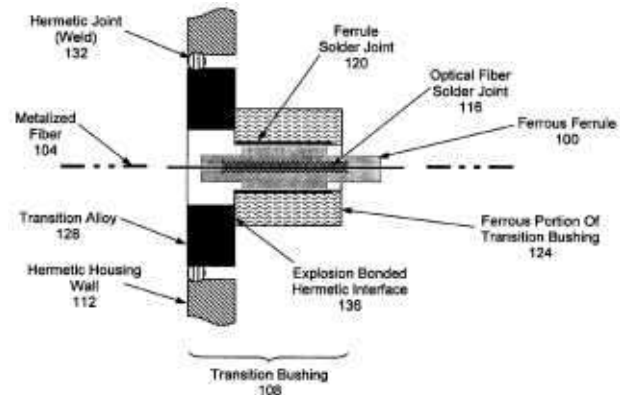
CCI - [G02B6/4248](#)

CI - G02B6/4248 (EP)

PA - (B2)
LIGHTHOUSE CAPITAL PARTNERS
[US]

TI - (A1 B2)
Methods and apparatus for
sealed fiber optic feedthroughs

AB - (A1)
Methods and apparatus for
hermetically sealing an **optical
fiber** in a feedthrough
connection. In brief overview,
the **optical fiber** is mounted in
a **housing** whose physical
properties differ from that of the
fiber by utilizing a structure in
accord with the present
invention. The structure, typically



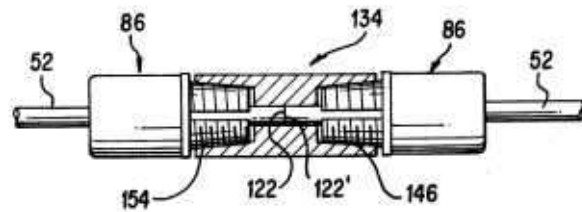
in transition **bushing** form, is formed from at least two materials, such that the physical properties of a first material are selected to match the physical properties of the **optical fiber**, and the physical properties of a second material are selected to match physical properties of the **housing**. When the matched physical properties are the coefficients of thermal expansion (CTE) of the fiber and the **housing**, the result is a fiber optic mounting that remains hermetically sealed despite changes in ambient temperature that would typically induce stresses in the seal, potentially causing its failure.

- (B2)

Methods and apparatus for hermetically sealing an **optical fiber** in a feedthrough connection. In brief overview, the **optical fiber** is mounted in a **housing** whose physical properties differ from that of the fiber by utilizing a structure in accordance with the present invention. The structure, typically in transition **bushing** form, is formed from at least two materials, such that the physical properties of a first material are selected to match the physical properties of the **optical fiber**, and the physical properties of a second material are selected to match physical properties of the **housing**. When the matched physical properties are the coefficients of thermal expansion (CTE) of the fiber and the **housing**, the result is a fiber optic mounting that remains hermetically sealed despite changes in ambient temperature that would typically induce stresses in the seal, potentially causing its failure.

16/41 © EPODOC / EPO

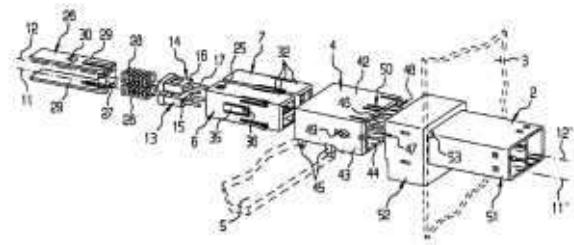
- PN - [US5115484](#) A 19920519
- PR - US19900634660 19901227
- AP - [US19900634660](#) 19901227
- DT - *: Rep
- CT - // STSE (A)
[US4261774](#) A 00000000 [];
[US4418983](#) A 00000000 [];
[US4896939](#) A 00000000 [];
[US4911518](#) A 00000000 []
- CCI - [G02B6/3816](#) ; [G02B6/3825](#) ;
[G02B6/3887](#) ; [G02B6/4248](#)
- CCA - [G02B6/3894](#)
- CI - G02B6/3816 (EP)
G02B6/3825 (EP)
G02B6/3887 (EP)
G02B6/4248 (EP)
- CA - G02B6/3894 (EP)
- PA - SQUARE D CO [US]
- TI - Multipurpose **optical fiber**
connector
- AB - A device for connecting standard plastic covered fiber optic cable and armored fiber optic cable to a **housing** for electrical or electronic equipment. The device consist of a portion of the **housing** having a passage between an exterior surface of the **housing** and a interior surface of the **housing**. At the interior end of the passage is an aperture sized to receive a standard plastic covered fiber optic cable. The passage is tapered such that the interior end has a smaller diameter than the exterior end and the passage is threaded. A **bushing** is received in the passage. The **bushing** has a passage through its center through which the fiber optic cable passes. One end of the **bushing** is threaded and has an aperture in the center thereof sized for receiving a standard plastic covered fiber optic cable. The threaded end of the **bushing** also includes a longitudinal slot.



As the **bushing** is screwed into the **housing** passage the slot compresses causing the aperture at the end of the threaded portion of the **bushing** to clamp around the fiber optic cable. The clamping action physically connects the fiber optic cable to the electrical equipment **housing**.

17/41 © EPODOC / EPO

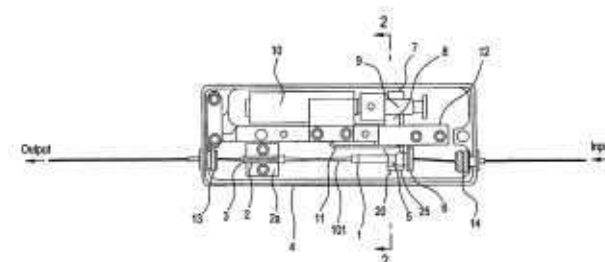
- PN - [US6513989](#) B1 20030204
- PR - DE19971026854
19970624; WO1998DE01479
19980529
- AP - [US19990472219](#) 19991227
- DT - **
- CT - || STSE (B1)
[US5542015](#) A 19960730 []
(HULTERMANS ANTONIUS P C M [NL]);
[US5712938](#) A 19980127 [] (LIN SAMUEL I-EN [TW], et al);
[US5796896](#) A 19980818 [] (LEE NICHOLAS A [US]);
[US5930426](#) A 19990727 [] (HARTING DIETMAR [DE], et al);
[US5960138](#) A 19990928 [] (SHIMOJI NAOKO [JP], et al)
- CCI - [G02B6/3879](#) ; [G02B6/3885](#) ;
[G02B6/3897](#)
- CI - G02B6/3879 (EP)
G02B6/3885 (EP)
G02B6/3897 (EP)
- PA - TYCO ELECTRONICS LOGISTICS AG [CH]
- TI - Ferrule container for holding a multiple **optical fiber** disposed in a ferrule, and a connector for connecting multiple optical fibers
- AB - A ferrule container for holding a plurality of ferrules retaining a multiplicity of optical fibers. The ferrule container includes outer walls defining a plurality of parallel ferrule passageways for holding a plurality of ferrules, and a ferrule holder including a spring holder and a compression



spring. The spring holder and one of the outer walls are formed with mutually cooperating structure including a latching nose and a latching nose opening cooperating to orient and hold the spring holder in at least one of the ferrule passageways. A connecting configuration is also provided for connecting a multiplicity of optical fibers including a board **housing** with a first ferrule and a **bushing housing** with a second ferrule. The first ferrule and the **bushing housing** are constructed such that they can be intermated on a carrier plate in such a way that the board can be displaced to a large extent with reference to the carrier plate without having a negative effect on a connection between a ferrule on the board and a ferrule on the carrier plate.

18/41 © EPODOC / EPO

- PN - [US6173106](#) B1 20010109
- PR - US19990394558
19990910; US19980100004P
19980911
- AP - [US19990394558](#) 19990910
- DT - **
- CT - || STSE (B1)
[US5649036](#) A 19970715 []
(ANDERSON DUWAYNE R [US], et al);
[US6101301](#) A 20000808 []
(ENGELBERTH JON W [US], et al)
- CCI - [G02B6/266](#)
- CCA - [G02B6/2835](#)
- CI - G02B6/266 (EP)
- CA - G02B6/2835 (EP)
- PA - CORNING INC [US]
- TI - Fiber coupler variable optical attenuator
- AB - A fiber coupled variable optical attenuator includes an **optical fiber** coupler mounted through a low modulus material **bushing**



into a protective **enclosure** with one end clamped and another end free. The free end of the coupler is deflected by a motorized mechanism. The mechanism includes an electric step motor, a shaft providing eccentric motion, and a support/deflection component connected with the coupler in a kinematic chain providing lateral deflection of the coupler's free end. The structural and material parameters of the kinematic chain members are established to satisfy conditions of thermal compensation for the **enclosure** enveloping this chain. The free end of the coupler is equipped with a sleeve having a spherical polished surface positioned in contact with the deflection component. The **enclosure** is equipped with a thermal-compensating device positioned in series between the **enclosure** and optical fibers.

19/41 © EPODOC / EPO

PN - [US6253017](#) B1 20010626

PR - US19990368178 19990804

AP - [US19990368178](#) 19990804

DT - *; Rep

CT - *// STSE (B1)*
[US4261640](#) A 00000000 [];
[US4878730](#) A 00000000 [];
[US4900124](#) A 00000000 [];
[US5067783](#) A 00000000 [];
[US5082345](#) A 00000000 [];
[US5257335](#) A 00000000 [];
[US5321790](#) A 00000000 []

CCI - [G02B6/266](#) ; [G02B6/3821](#) ; [G02B6/3869](#)

CCA - [G02B6/3874](#)

CI - [G02B6/266](#) (EP)
[G02B6/3821](#) (EP)
[G02B6/3869](#) (EP)

CA - [G02B6/3874](#) (EP)

PA - DELPHI TECH INC [US]

TI - Fiber optic connector with optical attenuator

- AB - The fiber optic connector with an optical attenuator includes a first end assembly, a second end assembly and an alignment sleeve. The first end assembly includes a **bushing** with a central bore and an **optical fiber** passing through the central bore. The second end assembly includes a **bushing** with a central bore and an **optical fiber** passing through the central bore. The alignment sleeve receives the first and second end assemblies and holds the two optical fibers in axial alignment. The alignment sleeve also holds a thin plastic or glass optical attenuator disc with a selected optical density between the two end assemblies. When the connector is held in a connector **housing** assembly, the axially aligned optical fibers have their ends in contact with opposite sides of the optical attenuator disc. A spring bias the **optical fiber** ends toward the optical attenuator disc. An optical attenuator disc with a different optical density can replace the disc in the alignment sleeve to change attenuation. An alignment sleeve with an optical attenuator disc can also be replaced by another alignment sleeve with an attenuator disc having a different optical density.

20/41 © EPODOC / EPO

- PN - [US4461538](#) A 19840724
 PR - US19810312999 19811020
 AP - [US19810312999](#) 19811020
 DT - *; Rep
 CT - || STSE (A)
[US4075477](#) A 00000000 [];
[US4184741](#) A 00000000 [];
[US4186995](#) A 00000000 [];
[US4186996](#) A 00000000 [];
[US4222629](#) A 00000000 [];
[US4255015](#) A 00000000 []

CCI - [G02B6/4204](#) ; [G02B6/4292](#)

CCA - [G02B6/4236](#)

CI - G02B6/4204 (EP)

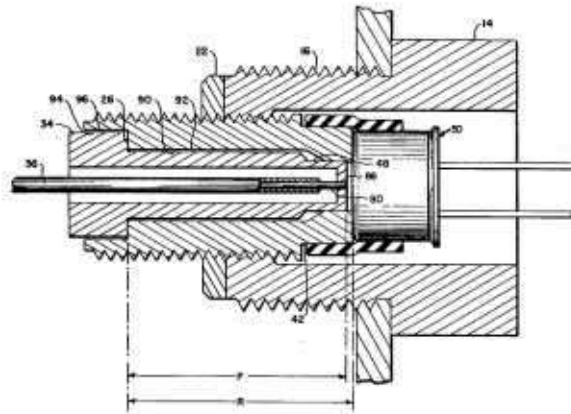
- G02B6/4292 (EP)

CA - G02B6/4236 (EP)

PA - AUGAT INC [US]

TI - Active receptacle having resilient sleeve-like **bushing**

- AB - Efficient coupling of light between an active device such as a light emitting diode having a focused light output and a ferruled **optical fiber** is provided by a receptacle having an adapter for increasing the diameter of the ferrule to that of the active device. The active device is concentrically and resiliently mounted at the end of the adapter, with the resilient mounting including a resilient **bushing** to accommodate

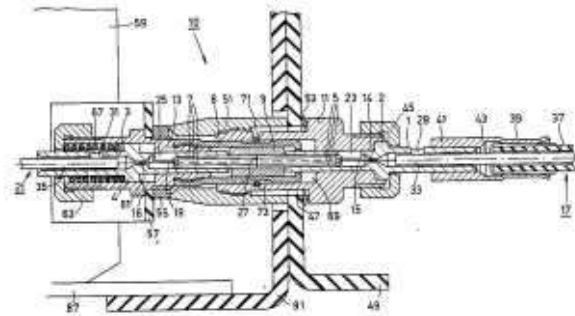


variation in the size of the can **housing** the active device. The resilient **bushing** serves to center the can on the central axis of the adapter such that when a ferruled **optical fiber** is inserted into the adapter the **optical fiber** is coaxially aligned with and spaced from the active device.

21/41 © EPODOC / EPO

PN - [US4684212](#) A 19870804
 PR - NL19800003545 19800619
 AP - [US19810270161](#) 19810603
 DT - **
 CT - // STSE (A)
[US4050783](#) A 00000000 [];
[US4183619](#) A 00000000 [];
[US4192575](#) A 00000000 [];
[US4223979](#) A 00000000 [];
[US4289374](#) A 00000000 [];
[GB2007868](#) A 00000000 [];
[GB2033104](#) A 00000000 []

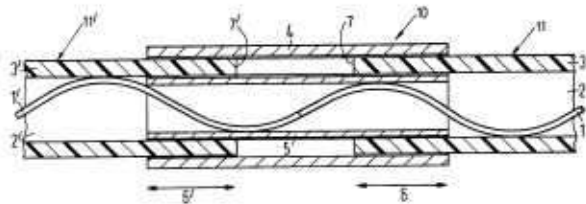
CCI - [G02B6/3841](#)
 CCA - [G02B6/3897](#)
 CI - G02B6/3841 (EP)
 CA - G02B6/3897 (EP)
 PA - PHILIPS CORP [US]
 TI - Detachable optical connector
 AB - An optical connector for coupling pairs of optical fibers. The connector comprises a multi-part **housing** accommodating two pin holders. Each pin holder encloses one or three pins which enclose an elongate duct for accommodating one end of an **optical fiber**. The pins are aligned with respect to each other by means of a coupling **bushing**. A set of pins projects beyond a first **housing** part and is protected by a protective cap which is detachably mounted on the **housing** part and which projects beyond the end of the set of pins. A coupling **bushing** is arranged on the pins inside the



protective cap. A collar formed on the protective cap keeps the coupling **bushing** in position. The protective cap also serves for precentering during the assembly of the connector. To this end, the protective cap forms a smooth fit with a recess in a second **housing** part within which the second, mating pin holder is accommodated. One of the pin holders, and hence the set of pins is preferably arranged to be resilient in the longitudinal direction.

22/41 © EPODOC / EPO

- PN - [US4379614](#) A 19830412
- PR - DE19792936716 19790911
- AP - [US19800181946](#) 19800827
- DT - **
- CT - // STSE (A)
[DE2425798](#) A1 19750109 []
 (PLESSEY HANDEL INVESTMENT AG);
[US1897630](#) A 19330214 []
 (CHAMBERLAIN GEORGE L);
[US2644028](#) A 19530630 [] (BERNET
 EDWIN J);
[US3297819](#) A 19670110 []
 (DOUGLAS WETMORE JUDSON);
[US4039248](#) A 19770802 [] (FRANKE
 HERMANN, et al);
[US4179186](#) A 19791218 [] (TYNES
 ARTHUR R [US]);
[US4261644](#) A 19810414 []
 (GIANNARIS ROBERT J)
- CTNP - // STSE (A)
 [] - Bark, Fiber Optic Cable
 Design Testing and Installation
 Experiences, Conf. Proc. of 27th
 Wire & Cable Symp. Nov. 1978pp.
 379-384.
 [] - C. M. Miller, "Optical Fiber
 Splicing", published in Technical
 Digest of Topical Meeting on
 Optical Fiber Transmission II,
 Feb. 22-24, 1977 at
 WilliamsburgVa.
- CCI - [G02B6/4414](#) ; [H01R4/60](#)
- CI - G02B6/4414 (EP)



- H01R4/60 (EP)
- PA - SIEMENS AG [DE]
- TI - Splice connection for a pair of light waveguide cables with optical fibers in tubular sheaths
- AB - A connecting device for a pair of light waveguide cables with each cable having an **optical fiber** which is loosely enclosed in a tubular sheath characterized by a joint between the ends of the pair of sheaths of the two cables being bridged by an appropriate tube which is fixed to the ends of the two sheaths and does not require any special **housing** such as **bushing** and the like. The tube may be an inner tube, which is inserted into the interiors of the pair of tubular sheaths being connected together or an outer tube which is fixed onto the tubular sheaths. In another embodiment, both an inner and outer tube are utilized. A length adjustment of the **optical fiber** within the pair of tubular sheaths can be carried out by virtue of a helical arrangement of the **optical fiber** and the bridging which is provided by the one or more tubes.

PN - [US4385797](#) A 19830531

PR - FR19790015841 19790620

AP - [US19800160704](#) 19800618

DT - **

CT - // STSE (A)
[US4166672](#) A 00000000 [];
[US4184741](#) A 00000000 []

CCI - [G02B6/4202](#) ; [G02B6/4204](#) ;
[G02B6/4248](#)

CCA - [G05B2219/34215](#) ; [H01L2224/48091](#)

CLC - [H01L2224/48091](#), [H01L2924/00014](#) ,
ADD

CI - G02B6/4202 (EP)
G02B6/4204 (EP)
G02B6/4248 (EP)

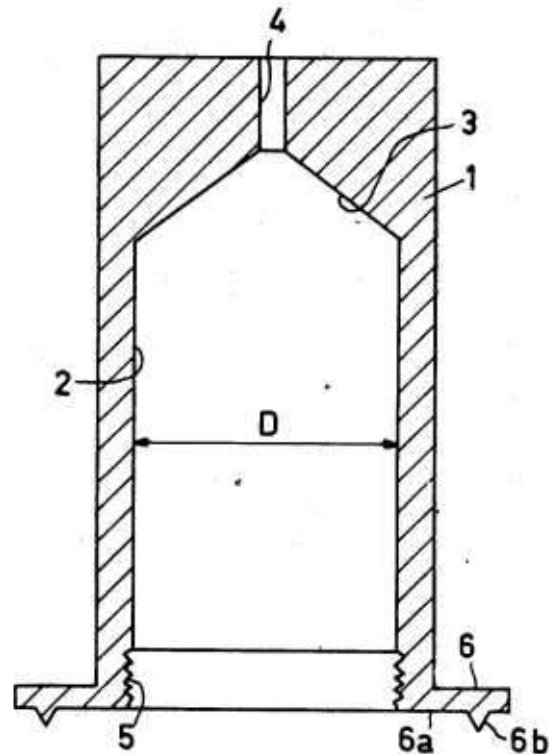
CA - G05B2219/34215 (EP)
H01L2224/48091 (EP)

CL - H01L2224/48091, H01L2924/00014,
ADD (EP)

PA - PHILIPS CORP

TI - Light-emitting device coupled to
an optical fibre

AB - **Optical fiber** communication
systems require a light source to
be coupled to a fiber with good
alignment, with low risk of fiber
breakage, and with a hermetic
seal of around the coupling
zone. Elastically deformable
clamping and sealing rings
around the fiber and within a
metal sleeve **housing** the source
are known. The invention
employs two soft deformable
rings spaced apart by a
rigid **bushing**. The rings have
conical surfaces compressed
between corresponding conical
surfaces in the sleeve. Axial
alignment of the fiber is
achieved with a minimum of
interfaces to obtain a good seal.



PN - [US2005254759](#) A1 20051117

PR - US20050108251
20050418; US20040571841P
20040517

AP - [US20050108251](#) 20050418

DT - *; Rep

CT - // R141 (A1)
[US6335869](#) B1 00000000 [];
[US2004001299](#) A1 00000000 [];
[US6672774](#) B2 00000000 [];
[US5886294](#) A 00000000 [];
[US6200041](#) B1 00000000 [];
[US2005111533](#) A1 00000000 [];
[US2002085818](#) A1 00000000 [];
[US6482017](#) B1 00000000 [];
[US6816376](#) B2 00000000 [];
[US6817782](#) B2 00000000 [];
[US6005458](#) A 00000000 [];
[US6659655](#) B2 00000000 []

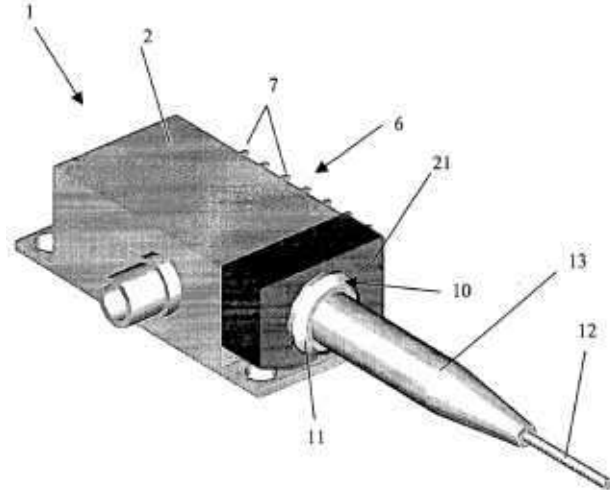
CCI - [G02B6/4202](#) ; [G02B6/4248](#) ;
[G02B6/4277](#)

CI - G02B6/4202 (EP)
G02B6/4248 (EP)
G02B6/4277 (EP)

PA - JDS UNIPHASE CORP [US]

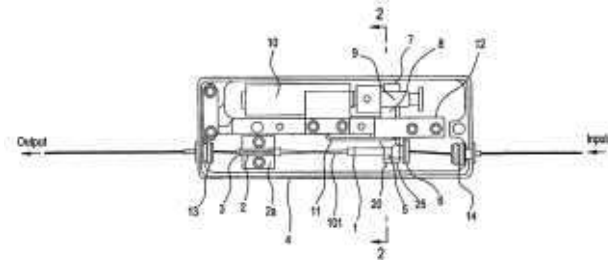
TI - RF absorbing strain relief **bushing**

AB - The invention relates to a resilient, non-conductive, RF absorptive, strain-relief **bushing** mounted on a electro-optical module for limiting the amount of electromagnetic interference emanating from the **housing** of the electro-optical module. The electro-optical module includes an optical sub-assembly for converting electrical signals into optical signals or vice versa, and an input/output port for transmitting the optical signal to the optical sub-assembly via an **optical fiber**. The **bushing** is in the form of a collar, which surrounds the input/output port of the electro-optical module, or a boot, which extends from one end of the input/output port down a portion of the length of the **optical fiber**.



25/41 © EPODOC / EPO

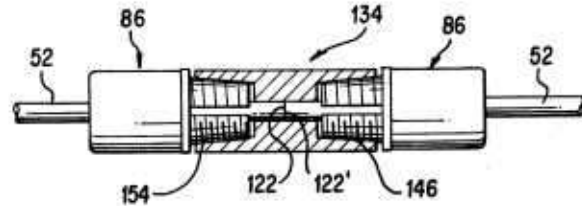
- PN - [WO0016143](#) A1 20000323
- PR - US19980100004P 19980911
- AP - [WO1999US18528](#) 19990813
- DT - *: Rep
- CT - *[US]* ISR (A1)
[US5647040](#) A 19970708 [A]
(MODAVIS ROBERT ADAM [US], et al);
[US5653897](#) A 19970805 [A]
(FINDLAN SHANE JOSEPH [US], et al)
- CCI - [G02B6/266](#)
- CCA - [G02B6/2835](#)
- CI - G02B6/266 (EP)
- CA - G02B6/2835 (EP)
- PA - CORNING INC [US]; DEBOYNTON
WILLIAM L [US]; USCHITSKY
MICHAEL [US]
- TI - FIBER COUPLER VARIABLE OPTICAL
ATTENUATOR
- AB - A fiber coupled variable optical attenuator includes an **optical fiber** coupler mounted through a low modulus material **bushing** (2) into a protective **enclosure** (4) with one end clamped and another end free (1). The free end (1) of the coupler is deflected by a motorized mechanism. The mechanism includes an electric step motor (10), a shaft (9) providing eccentric motion, and a support/deflection component connected with the coupler in a kinematic chain, which provides lateral deflection of the coupler's free end. The structural and material parameters of the kinematic chain members are established to satisfy conditions of thermal compensation for the **enclosure** enveloping this chain. The free end of the coupler is equipped with a sleeve having a spherical polished surface positioned in contact with the deflection



component. The **enclosure** (4) is equipped with a thermal-compensating device (14) positioned in series between the **enclosure** (4) and optical fibers.

26/41 © EPODOC / EPO

- PN - [WO9212448](#) A1 19920723
- PR - US19900634660 19901227
- AP - [WO1991US09792](#) 19911227
- DT - **
- CT - /US/ ISR (A1)
[US4911518](#) A 00000000 [Y];
[US4418983](#) A 00000000 [A];
[US4896939](#) A 00000000 [A];
[US4261774](#) A 00000000 [A]
- CCI - [G02B6/3816](#) ; [G02B6/3825](#) ;
[G02B6/3887](#) ; [G02B6/4248](#)
- CCA - [G02B6/3894](#)
- CI - G02B6/3816 (EP)
G02B6/3825 (EP)
G02B6/3887 (EP)
G02B6/4248 (EP)
- CA - G02B6/3894 (EP)
- PA - SQUARE D CO [US]
- TI - MULTIPURPOSE **OPTICAL FIBER**
CONNECTOR
- AB - A device for connecting standard plastic covered fiber optic cable (52) and armored fiber optic cable (56) to a **housing** for electrical or electronic equipment. The device consists of a portion of the **housing** (20) having a passage (32) between an exterior surface of the **housing** (24) and an interior surface of the **housing** (28). At the interior end of the passage (40) is an aperture (44) sized to receive a standard plastic covered fiber optic cable (52) . The passage (32) is tapered such that the interior end (40) has a smaller diameter than the exterior end (36) and the passage (32) is threaded. A **bushing** (86) is received in the passage (32).



The **bushing** (86) has a passage through its center through which the fiber optic cable passes. One end (90) of the **bushing** is threaded (102) and has an aperture (118) in the center thereof sized for receiving a standard plastic covered fiber optic cable (52). The threaded end (90) of the **bushing** (86) also includes a longitudinal slot (106). As the **bushing** (86) is screwed into the **housing** passage (32) the slot (106) compresses causing the aperture (118) at the end of the threaded portion (102) of the **bushing** (86) to clamp around the fiber optic cable (52). The clamping action physically connects the fiber optic cable (52) to the electrical equipment **housing**.

27/41 © EPODOC / EPO

- PN - [WO8805925](#) A1 19880811
- PR - US19870010508 19870203
- AP - [WO1988US00218](#) 19880127
- DT - *, Rep
- CT - *[EP] ISR (A1)*
[WO8600147](#) A1 19860103 [] (AMP INC [US]);
[FR2530829](#) A1 19840127 [] (THORN EMI ELECTRICAL COMPONENT [GB]);
[US4047797](#) A 19770913 [] (ARNOLD BRUCE K, et al);
[GB1030663](#) A 19660525 [] (NORTHROP CORP);
[EP0156608](#) A2 19851002 [] (DU PONT [US]);
[EP0086266](#) A1 19830824 [] (DAI ICHI SEIKO CO LTD [JP]);
[DE3232108](#) A1 19840301 [] (LICENTIA GMBH [DE])
- CCI - [G02B6/3831](#) ; [G02B6/3849](#) ; [G02B6/3878](#) ; [G02B6/3887](#) ; [G02B6/3893](#) ; [G02B6/4246](#) ;
[G02B6/4292](#)
- CCA - [G02B6/3869](#)
- CI - [G02B6/3831](#) (EP)
[G02B6/3849](#) (EP)
[G02B6/3878](#) (EP)
[G02B6/3887](#) (EP)
[G02B6/3893](#) (EP)
[G02B6/4246](#) (EP)
[G02B6/4292](#) (EP)
- CA - [G02B6/3869](#) (EP)
- PA - AMERICAN TELEPHONE & TELEGRAPH [US]
- TI - DUPLEX **OPTICAL FIBER** CONNECTOR

AB

- A duplex **optical fiber** connector (20) includes a **housing** (21) having a cable entrance (26) end and a plug end (24). At the cable entrance end, an **optical fiber** cable (23) which includes two individually buffered optical fibers (25-25), strength member yarn (29) and a plastic jacket is routed into a flanged end of a **bushing** (45) having a tapered passageway therethrough. The **bushing** is supported in a base (22) of the **housing**. The jacket is removed from the portion of the cable which extends from the cable entrance end to the plug end and the yarn is positioned between two conformable, truncated conically shaped, substantially smooth surfaces which define the passageway of the **bushing** and a truncated conically shaped wedge (50) which is received in the passageway. The wedge includes a bore through which the optical fibers extend. This locking arrangement in which the yarn makes no retroflexed turns is self-enhancing when tensile forces are applied to the cable. At the plug end are secured two plugs (70-70) each terminating one of the optical fibers. Each plug is spring-loaded and further, end portions of the plugs which protrude beyond the connector **housing** are protected by a bumper (90) which also is spring-loaded and which is moved inwardly when the connector is assembled to another. A cover (52) is assembled to the base to complete the **housing** and to secure the force-transfer facilities and plugs therein.

28/41 © EPODOC / EPO

PN

- [US4787706](#) A 19881129

PR

- US19870010508 19870203

AP

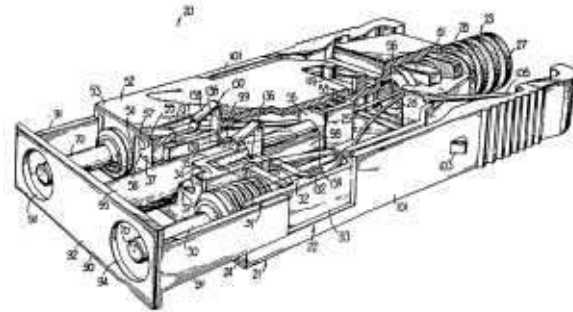
- [US19870010508](#) 19870203

DT

- **

CT

- || STSE (A)
[US4047797](#) A 19770913 [] (ARNOLD
BRUCE K, et al);
[US4233724](#) A 19801118 [] (BOWEN
TERRY P, et al);
[US4240695](#) A 19801223 [] (EVANS
ROBERT F [US]);
[US4277135](#) A 19810707 []
(SCHROTT WERNER G, et al);
[US4339165](#) A 19820713 [] (MALSOT
CHRISTIAN, et al);
[US4529263](#) A 19850716 []
(MORIYAMA MASAKAZU [JP], et al);
[US4611887](#) A 19860916 [] (GLOVER
DOUGLAS W [US], et al);
[US4634214](#) A 19870106 []
(CANNON JR THOMAS C [US], et al);
[US4640575](#) A 19870203 [] (DUMAS
THEODORE A [US]);
[US4657340](#) A 19870414 [] (TANAKA
TOSHIYASU [JP], et al);
[US4673242](#) A 19870616 [] (LOGAN
MAURUS C [US], et al);
[US4687291](#) A 19870818 [] (STAPE
WILLIAM J [US], et al);
[US4699462](#) A 19871013 [] (JONES
THEODORE L [US]);
[US4715675](#) A 19871229 [] (KEVERN



JAMES D [US], et al);
[EP0033118](#) A1 19810805 [] (TELDIX GMBH [DE]);
[EP0086266](#) A1 19830824 [] (DAI ICHI SEIKO CO LTD [JP]);
[EP0156608](#) A2 19851002 [] (DU PONT [US]);
[EP0177937](#) A2 19860416 [] (NEC CORP [JP], et al);
[DE3232108](#) A1 19840301 [] (LICENTIA GMBH [DE]);
[FR2530829](#) A1 19840127 [] (THORN EMI ELECTRICAL COMPONENT [GB]);
JPS544151 A 19790112 [] (NIPPON ELECTRIC CO);
JPS5616105 A 19810216 [] (OMRON TATEISI ELECTRONICS CO);
[WO8600147](#) A1 19860103 [] (AMP INC [US]);
[GB1030663](#) A 19660525 [] (NORTHROP CORP);
[GB2124793](#) A 19840222 [] (THORN EMI ELECTRICAL COMPONENT)

- CTNP - || STSE (A)
[] - Test Methods and Performance of a Multi Channel Hermaphroditic Optical Fiber Connector, J. F. Dagleish et al., International Wire & Cable Symposium1981.
[] - Tactical Fiber Optic Cable Assemblies, J. M. Anderson et al., Milcom, 1985, U.S. App. Ser. No. 887,468, filed 7/21/86, J. M. Anderson et al.
- CCI - [G02B6/3831](#) ; [G02B6/3849](#) ;
[G02B6/3878](#) ; [G02B6/3887](#) ;
[G02B6/3893](#) ; [G02B6/4246](#) ;
[G02B6/4292](#)
- CCA - [G02B6/3869](#)
- CI - G02B6/3831 (EP)
- G02B6/3849 (EP)
- G02B6/3878 (EP)
- G02B6/3887 (EP)
- G02B6/3893 (EP)
- G02B6/4246 (EP)
- G02B6/4292 (EP)
- CA - G02B6/3869 (EP)
- PA - AMERICAN TELEPHONE & TELEGRAPH [US]

- TI - Duplex **optical fiber** connector
- AB - A duplex **optical fiber** connector (20) includes a **housing** (21) having a cable entrance end and a plug end. At the cable entrance end, an **optical fiber** cable (23) which includes two individually buffered optical fibers (25-25), strength member yarn (29) and a plastic jacket is routed into a flanged end of a **bushing** (45) having a tapered passageway therethrough. The **bushing** is supported in a base (22) of the **housing**. The jacket is removed from the portion of the cable which extends from the cable entrance end to the plug end and the yarn is positioned between two conformable, truncated conically shaped, substantially smooth surfaces which define the passageway of the **bushing** and a truncated conically shaped wedge (50) which is received in the passageway. The wedge includes a bore through which the optical fibers extend. This locking arrangement in which the yarn makes no retroflexed turns is self-enhancing when tensile forces are applied to the cable. At the plug end are secured two plugs (70-70) each terminating one of the optical fibers. Each plug is spring-loaded and further, end portions of the plugs which protrude beyond the connector **housing** are protected by a bumper (90) which also is spring-loaded and which is moved inwardly when the connector is assembled to another. A cover (52) is assembled to the base to complete the **housing** and to secure the force-transfer facilities and plugs therein.

PN - [WO2004055552](#) A2 20040701

PNFP - WO2004055552 A3 20050203

PR - US20020433320P 20021213; US20030476668P 20030605; US20030689867 20031021

AP - [WO2003US39455](#) 20031212

DT - *; Rep

CT - /US/ ISR (A3)
[US4752109](#) A 00000000 [X];
[US4904046](#) A 00000000 [X];
[US5631990](#) A 00000000 [X]

CCI - [G02B6/4248](#)

CI - G02B6/4248 (EP)

PA - (A2 A3)
TERAPULSE INC [US]

TI - (A2 A3)
METHODS AND APPARATUS FOR SEALED FIBER OPTIC FEEDTHROUGHS

AB - (A2 A3)
Methods and apparatus for hermetically sealing an **optical fiber** in a feedthrough connection. In brief overview, the **optical fiber** is mounted in a **housing** whose physical properties differ from that of the fiber by utilizing a structure in accord with the present invention. The structure, typically in transition **bushing** form, is formed from at least two materials, such that the physical properties of a first material are selected to match the physical properties of the **optical fiber**, and the physical properties of a second material are selected to match physical properties of the **housing**. When the matched physical properties are the coefficients of thermal expansion (CTE) of the fiber and the **housing**, the result is a fiber optic mounting that remains hermetically sealed despite changes in ambient temperature that would typically induce stresses in the seal, potentially causing its failure.

30/41 © EPODOC / EPO

PN - [TW434427B](#) B 20010516

PR - US19980100004P 19980911

AP - [TW19990121029](#) 19991129

DT - I

CCI - [G02B6/266](#)

CCA - [G02B6/2835](#)

CI - G02B6/266 (EP)

CA - G02B6/2835 (EP)

PA - CORNING INC [US]

TI - Fiber coupler variable optical attenuator

AB - A fiber coupled variable optical attenuator includes an **optical fiber** coupler mounted through a low modulus material **bushing** into a protective **enclosure** with one end clamped and another end free. The free end of the coupler is deflected by a motorized mechanism. The mechanism includes an electric step motor, a shaft providing eccentric motion, and a support/deflection component connected with the coupler in a kinematic chain, which provides lateral deflection of the coupler's free end. The structural and material parameters of the kinematic chain members are established to satisfy conditions of thermal compensation for the **enclosure** enveloping this chain. The free

end of the coupler is equipped with a sleeve having a spherical polished surface positioned in contact with the deflection component. The **enclosure** is equipped with a thermal-compensating device positioned in series between the **enclosure** and optical fibers.

31/41 © EPODOC / EPO

PN - [JP2006064865](#) A 20060309
 PNFP - JP4121487B B2 20080723
 PR - JP20040245621 20040825
 AP - [JP20040245621](#) 20040825
 DT - I
 FI - G02B6/00&336; G02B6/46&321
 FT - 2H038/CA32; 2H038/CA38
 PA - (A)
 SEKISUI CHEMICAL CO LTD; JIMBO ELECTRIC
 TI - (A)
 OPTICAL OUTLET

AB - (A)
 PROBLEM TO BE SOLVED: To protect the connected part of an **optical fiber** from dust, moisture, etc., and to improve workability in an installation site.
 - (A)
 SOLUTION: The outer **housing** is composed of a case 10 which has an opening in the front as well as an inserting port 12 for a trunk side **optical fiber** in the back and a cover 20 which is mounted on the front opening of this case 10. In addition, the optical outlet is equipped with a repeater adaptor 30 which connects one end of the trunk side **optical fiber** 50 and one end of the equipment side **optical fiber**, a support body 40 which is freely rotatably mounted inside the case 10 and which holds the repeater adaptor 30, and an airtight **bushing** 60 which is attached to the trunk side **optical fiber** 50 and which seals a gap between the trunk side **optical fiber** 50 and the inserting port 12. The case 10 is provided with an arranging part 14 of the airtight **bushing** 60 adjacent to the inserting port 12 and also a guide wall 15 for guiding the airtight **bushing** 60 to the arranging part 14 in accordance with the rotating operation of the support body 40.
 - (A)
 COPYRIGHT: (C)2006,JPO&NCIPI

32/41 © EPODOC / EPO

PN - [JP2000081531](#) A 20000321
 PR - JP19980251169 19980904
 AP - [JP19980251169](#) 19980904
 DT - I
 FI - G02B6/00&336; G02B6/24; G02B6/46
 FT - 2H036/EA01; 2H036/FA02; 2H036/GA21; 2H036/HA02; 2H036/HA11; 2H036/HA24;
 2H036/NA01; 2H036/PA02; 2H036/RA02; 2H036/RA11; 2H036/RA24; 2H038/AA21; 2H038/CA38;
 2H038/CA67
 PA - NIPPON ELECTRIC ENG
 TI - METHOD FOR CONNECTING OPTICAL PARTS BY USING TUBE **HOUSING** TYPE **OPTICAL FIBER**
 AB - PROBLEM TO BE SOLVED: To prevent the disconnection and optical transmission loss of

optical fibers by preventing tension or slack to the optical fibers induced by a change in coil diameter when a protective tube **housing** the **optical fiber** is molded to a coil form. SOLUTION: The optical fibers 30 extending from optical parts are inserted into the nearly straightened protective tube 26 and thereafter, the one ends of the optical fibers are first restrained to one end of the protective tube 26 by a rubber **bushing** 38. Next, the protective tube 26 is molded to the coil form and thereafter, the optical fibers are restrained to the other end of the protective tube 26 by another rubber bush 38 in the position of the same length as the length of the protective tube 26. Finally, the other ends of the optical fibers are connected to the second optical parts.

33/41 © EPODOC / EPO

PN - [JPS5687003](#) A 19810715
 PNFP - JPS6235082B B2 19870730
 PR - JP19790163985 19791219
 AP - [JP19790163985](#) 19791219
 DT - I
 CCI - [G02B6/3887](#)
 CI - G02B6/3887 (EP)
 FI - G02B6/00&336; G02B6/36; G02B6/36&A; G02B6/46; H01B17/58&D; H02G3/22; H02G3/22&Z; H02G3/32; H05K7/00&F
 FT - 2H036/CA02; 2H036/CA06; 2H036/LA02; 2H036/LA06; 2H038/CA33; 4E352/AA08; 4E352/BB07; 4E352/CC02; 4E352/CC11; 4E352/CC12; 4E352/CC52; 4E352/CC53; 4E352/CC56; 4E352/DD05; 4E352/DR02; 4E352/DR14; 4E352/DR25; 4E352/DR26; 4E352/EE03; 4E352/EE12; 4E352/GG01; 4E352/GG15; 4E352/GG20; 5G333/AB07; 5G333/AB27; 5G333/AB28; 5G333/CB20; 5G333/DA03; 5G333/DC01; 5G363/AA07; 5G363/AA08; 5G363/AA13; 5G363/AA16; 5G363/BA10; 5G363/CA03; 5G363/CA12; 5G363/CB08; 5G363/DA15; 5G363/DC08
 PA - (A)
 FUJITSU LTD
 TI - (A)
 FIXING DEVICE OF **OPTICAL FIBER** WIRE
 AB - (A)
 PURPOSE: To combine and fix **optical fiber** to a ring shape, and make fixing space less and fixing work efficient by loading the **optical fiber** wires in the plural aligning grooves provided to the outside circumference of a **bushing**, clamping and holding these from the outside circumference of the **bushing** by means of a cylindrical fixing claw. CONSTITUTION: This is a device of combining and fixing plural, for example, 6 **optical fiber** wires 30 to a ring shape, wherein the **bushing** 13 and clamping claw 15 housed in a **housing** 11 may be combined by screwing a cover body 19 to one opening side of the **housing** 11. Six longitudinal grooves 37 are provided to the outside circumference of the **bushing** 13, and the optical fibers 30 loaded in these grooves 37 are clamped and held by the fixing claw 15 on the outside circumference of the **bushing** 13 by screwing a cover body 19 to the **housing** 11.

34/41 © EPODOC / EPO

PN - [JPH0238821](#) A 19900208
 PR - US19880205932 19880613
 AP - [JP19890148540](#) 19890613
 DT - I

CCI - [G01F23/2925](#) ; [G01F23/2927](#) ; [G02B13/0095](#)
CCA - [Y10S250/904](#)
CI - G01F23/2925 (EP)
- G01F23/2927 (EP)
- G02B13/0095 (EP)
CA - Y10S250/904 (EP)
FI - G01F23/28&A; G01F23/292&C
FT - 2F014/AA07; 2F014/AB02; 2F014/FA02
PA - IMOU IND INC
TI - OPTICAL LIQUID LEVEL DETECTION MEANS
AB - PURPOSE: To make a sensor operable even in an oscillatory environment by providing a bend at the intermediate part in the longitudinal direction of an **optical fiber** comprising a core part and a clad part having smaller refractive index and setting the outer diameter at the bend equal to or larger than the diameter of a clad core. CONSTITUTION: An optical water level detection element is cantilevered through a tubular **housing** 25, a tubular **bushing** 33, an embedding member 36, etc., with a clad glass core rod 28 being provided with two bends 29, 30. The bends 29, 30 and the intermediate linear part 31 are protected against mechanical impact by means of four arcuate finger parts 35 at the lower end of a bush 33 and they can be immersed into a liquid. Since the clad 46 has refractive index smaller than that of a core 45 and the outside diameter of the bends 29, 30 is at least equal to the diameter of a clad core, incident light from a line A is confined where no liquid is present and goes to a line B. In the liquid 11, the light is scattered from the rod 28 into the liquid and does not enter into the line B.

35/41 © EPODOC / EPO

PN - [ES291561U](#) U 19861016
PNFP - ES291561Y Y 19870616
PR - ES19860291561U 19860108
AP - [ES19860291561U](#) 19860108
DT - I
TI - (U)
Signaling device for perfeccioned railways (Machine-translation by Google Translate, not legally binding)
AB - (U)
Rail signaling device, perfected, being of the type where the signal is represented by a plurality of light emitting points, is characterized essentially because each of the points of light is transmitted by an **optical fiber** that conducts a beam of light towards a solidary terminal to a support panel integrated in a **housing**, with the particularity that the terminals are constituted by a **bushing** that in its front incorporate a lens coaxial to the **optical fiber** that conditions in a light beam concentrating it at a distant point or dispersing it in a close distance, the ferrules with their lenses arranged on the lining being concentrated and dispersing lenses make up the signal so that it is visible at long and medium distances or all the ferrules having one of both types of coaxial lens. (Machine-translation by Google Translate, not legally binding)

36/41 © EPODOC / EPO

PN - [EP0547778](#) A1 19930623

PR - US19910812240 19911219

AP - [EP19920310597](#) 19921120

DT - **

CT - // STSE (A1)
[US4595251](#) A 00000000 [X];
[US4913514](#) A 00000000 [A];
[DE2922705](#) A1 00000000 [A];
[US4863235](#) A 00000000 [AD]

CCI - [G02B6/383](#)

CCA - [G02B6/3821](#) ; [G02B6/3823](#) ;
[G02B6/3849](#) ; [G02B6/3869](#) ;
[G02B6/3873](#) ; [G02B6/3887](#) ;
[G02B6/3894](#)

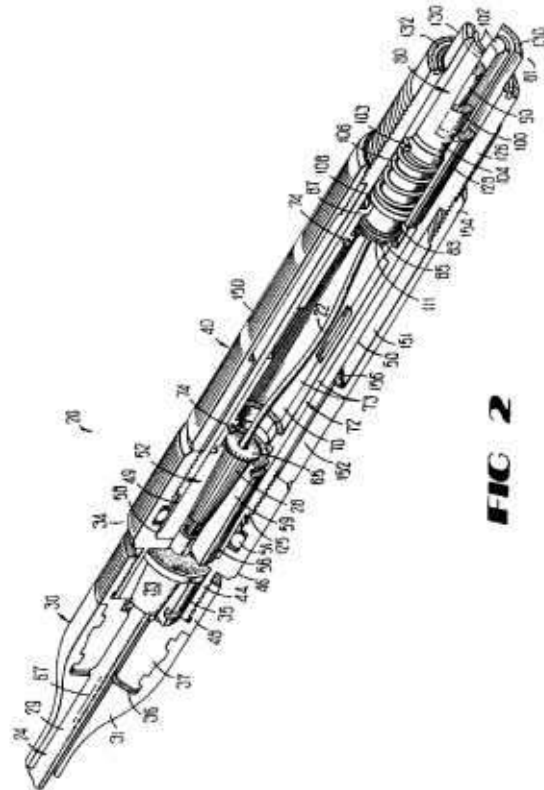
CI - G02B6/383 (EP)

CA - G02B6/3821 (EP)
G02B6/3823 (EP)
G02B6/3849 (EP)
G02B6/3869 (EP)
G02B6/3873 (EP)
G02B6/3887 (EP)
G02B6/3894 (EP)

PA - AMERICAN TELEPHONE &
TELEGRAPH [US]

TI - Hermaphroditic connector for
single fiber optical cable.

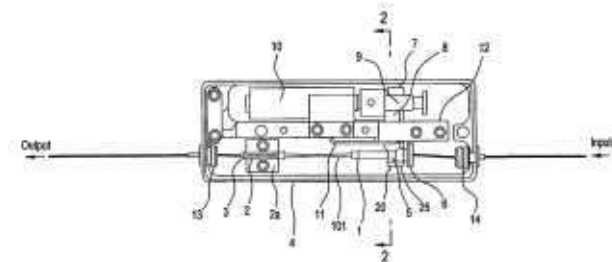
AB - A single **optical fiber**
hermaphroditic connector (20)
includes a ferrule or plug (90) of
a subassembly which terminates
an **optical fiber** (22) of a cable (24)
and an end of which is received
in a cavity of a **housing** (83).
Furcations (102,102) of a
bifurcated member extend
beyond a free end of the ferrule.
An end of the **housing** is
supported from one free end of a
tubular member (70) such that a
compression spring (106)
disposed about the **housing**
causes the ferrule to be biased
outwardly. An opposite end of
the tubular member is connected
to a **bushing** and tapered plug
arrangement which is effective to
transfer forces from strength
members of the cable to the
connector to prevent the forces



from being applied to the connection. The subassembly is received in a sleeve (50) having a small diameter threaded end adjacent to the force transfer arrangement and an enlarged diameter, externally threaded end which encloses the **housing** and the bifurcated member. A coupling nut (150) having an internally threaded end is disposed about the sleeve and is adapted to receive a free end of another single fiber hermaphroditic connector such that the internally threaded free end of the coupling nut is turned into engagement with the externally threaded enlarged end of the sleeve of the other connector to hold together the connectors. <IMAGE>

37/41 © EPODOC / EPO

- PN - [CA2341675](#) A1 20000323
- PR - US19980100004P
19980911; WO1999US18528
19990813
- AP - [CA19992341675](#) 19990813
- DT - I
- CCI - [G02B6/266](#)
- CCA - [G02B6/2835](#)
- CI - G02B6/266 (EP)
- CA - G02B6/2835 (EP)
- PA - CORNING INC [US]
- TI - FIBER COUPLER VARIABLE OPTICAL ATTENUATOR
- AB - A fiber coupled variable optical attenuator includes an **optical fiber** couple r mounted through a low modulus material **bushing** (2) into a protective enclosu re (4) with one end clamped and another end free (1). The free end (1) of the coupler is deflected by a motorized mechanism. The mechanism includes an electric step motor (10), a shaft (9) providing



eccentric motion, and a support/deflection component connected with the coupler in a kinematic chain, which provides lateral deflection of the coupler's free end. The structural and material parameters of the kinematic chain members are established to satisfy conditions of thermal compensation for the **enclosure** enveloping this chain. The free end of the coupler is equipped with a sleeve having a spherical polished surface positioned in contact with the deflection component. The **enclosure** (4) is equipped with a thermal-compensating device (14) positioned in series between the **enclosure** (4) and optical fibers.</SDO AB>

38/41 © EPODOC / EPO

PN - [CA2082838](#) A1 19930620

PNFP - CA2082838 C 19980818

PR - US19910812240 19911219

AP - [CA19922082838](#) 19921113

DT - I

CCI - [G02B6/383](#)

CCA - [G02B6/3821](#) ; [G02B6/3823](#) ; [G02B6/3849](#) ; [G02B6/3869](#) ; [G02B6/3873](#) ; [G02B6/3887](#) ; [G02B6/3894](#)

CI - G02B6/383 (EP)

CA - G02B6/3821 (EP)
- G02B6/3823 (EP)
- G02B6/3849 (EP)
- G02B6/3869 (EP)
- G02B6/3873 (EP)
- G02B6/3887 (EP)
- G02B6/3894 (EP)

PA - (A1 C)
AMERICAN TELEPHONE & TELEGRAPH [US]

TI - (A1 C)
HERMAPHRODITIC CONNECTOR FOR SINGLE FIBER OPTICAL CABLE

AB - (C)
A single **optical fiber** hermaphroditic connector includes a ferrule or plug of a subassembly which terminates an **optical fiber** of a cable and an end of which is received in a cavity of a **housing**. Furcations of a bifurcated member extend beyond a

free end of the ferrule. An end of the **housing** is supported from one free end of a tubular member such that a compression spring disposed about the **housing** causes the ferrule to be biased outwardly. An opposite end of the tubular member is connected to a **bushing** and tapered plug arrangement which is effective to transfer forces from strength members of the cable to the connector to prevent the forces from being applied to the connection. The subassembly is received in a sleeve having a small diameter threaded end adjacent to the force transfer arrangement and an enlarged diameter, externally threaded end which encloses the **housing** and the bifurcated member. A coupling nut having an internally threaded end is disposed about the sleeve and is adapted to receive a free end of another single fiber hermaphroditic connector such that the internally threaded free end of the coupling nut is turned into engagement with the externally threaded enlarged end of the sleeve of the other connector to hold together the connectors.

39/41 © EPODOC / EPO

- PN - [CA1308280](#) C 19921006
- PR - US19870010508 19870203
- AP - [CA19880557990](#) 19880202
- DT - I
- CCI - [G02B6/3831](#) ; [G02B6/3849](#) ; [G02B6/3878](#) ; [G02B6/3887](#) ; [G02B6/3893](#) ; [G02B6/4246](#) ; [G02B6/4292](#)
- CCA - [G02B6/3869](#)
- CI - [G02B6/3831](#) (EP)
- [G02B6/3849](#) (EP)
- [G02B6/3878](#) (EP)
- [G02B6/3887](#) (EP)
- [G02B6/3893](#) (EP)
- [G02B6/4246](#) (EP)
- [G02B6/4292](#) (EP)
- CA - [G02B6/3869](#) (EP)
- PA - AMERICAN TELEPHONE & TELEGRAPH [US]
- TI - DUPLEX **OPTICAL FIBER** CONNECTOR
- AB - DUPLEX **OPTICAL FIBER** CONNECTOR A duplex **optical fiber** connector includes a **housing** having a cable entrance end and a plug end. At the cable entrance end, an **optical fiber** cable which includes two individually buffered optical fibers, strength member yarn and a plastic jacket is routed into a flanged end of a **bushing** having a tapered passageway therethrough. The **bushing** is supported in a base of the **housing**. The jacket is removed from the portion of the cable which extends from the cable entrance end to the plug end and the yarn is positioned between two conformable, truncated conically shaped, substantially smooth surfaces which define the passageway of the **bushing** and a truncated conically shaped wedge which is received in the passageway. The wedge includes a bore through which the optical fibers extend. This locking arrangement in which the yarn makes no retroflexed turns is self-enhancing when tensile forces are applied to the cable. At the plug end are secured two plugs each terminating one of the optical fibers. Each plug is spring-loaded and further, end portions of the plugs which protrude beyond the connector **housing** are protected by a bumper which also is spring-loaded and which is moved inwardly when the connector is assembled to another. A cover is assembled to the base to complete the **housing** and to secure the force-transfer facilities and plugs therein.

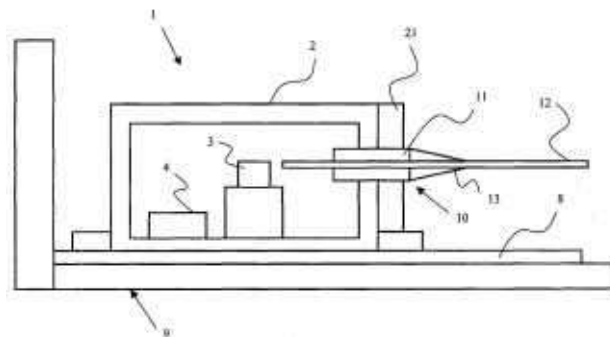
40/41 © EPODOC / EPO

PN - [CA1237307](#) A 19880531
 PR - US19830455400 19830103
 AP - [CA19830442964](#) 19831209
 DT - I
 PA - SWITCHCRAFT
 TI - FIBER OPTIC CONNECTOR AND METHOD OF ASSEMBLY
 AB - A fiber optic connector comprising a coupling shell encircling a glass end portion of a **bushing** disposed axially within an encircling ferrule having an end portion extended axially out of the shell and terminating in a dish-shaped end surface provided with a central aperture through which an **optical fiber** element extending axially through the glass end portion of the **bushing** and the ferrule protrudes to terminate at a planar end surface spaced axially from the aperture, the dish-shaped end surface being curved concavely and continuously from the aperture radially to a circular rim which is spaced a greater axial distance from the aperture than the planar end surface of the **optical fiber** element. The method of assembling the fiber optic connector onto the **optical fiber** element including the steps of securing the glass end portion of the **bushing** to a body portion thereof with bonding material insensitive to ultraviolet light and securing the **optical fiber** element to the glass end portion with bonding material sensitive to ultraviolet light. A fiber optic junction assembly comprising two of the fiber optic connectors having the circular rims of their respective dish-shaped end surfaces disposed in abutting relationship and forming a biconvex **enclosure** wherein the planar end surfaces of the respective **optical fiber** elements are disposed in axial spaced alignment with one another.

41/41 © EPODOC / EPO

PN - [EP1598686](#) A2 20051123
 PNFP - EP1598686 A3 20051207
 PR - US20040571841P 20040517
 AP - [EP20050008069](#) 20050413
 DT - **
 CT - || STSE (A3)
[US2002085818](#) A1 00000000 [XY]
 (FISCHER UWE ET AL)
 [X] 1,6-9
 * page 2, column 1, line 32,
 paragraphs 5,9,13,23 - line 34; figure
 4 *
 * Idem *
 [Y] 2-5;
[WO02079841](#) A1 00000000 [Y]
 (LAIRD TECHNOLOGIES, INC;
 ROBINSON, KENNETH; AIT-EL-CADI,
 MOHAMED)
 [Y] 2-5
 * figures 1,11,12 *;
[US2004001299](#) A1 20040101 [A]
 (VAN HAASTER PHILIP [US], et al)

Figure 2



[A] 1,8,9
 * paragraphs [0004] , [0007] ,
 [0010]; figure 6 *;
[EP1203785](#) A1 00000000 [A] (SHIN-
 ETSU CHEMICAL CO., LTD)
 [A] 1,8,9
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[XP002344814](#) A[A]

- CTNP - || STSE (A3)
 [A] - ANONYMOUS, "ECCOSORB®
 Standard Product Index",
 INTERNET ARTICLE, (20010202),
 URL: <http://web.archive.org/web/20010202154900/http://www.eccosorb.com/catalog/eccosorb/index.asp>
 (20050914), XP002344814
 [A] 1,8,9
 * the whole document *
- CCI - [G02B6/4202](#) ; [G02B6/4248](#) ;
[G02B6/4277](#)
- CI - G02B6/4202 (EP)
 - G02B6/4248 (EP)
 - G02B6/4277 (EP)
- PA - (A2 A3)
 JDS UNIPHASE CORP [US]
- TI - (A2 A3)
 RF absorbing strain relief **bushing**
- AB - (A2)
 The invention relates to a
 resilient, non-conductive, RF
 absorptive, strain-relief **bushing**
 (21) mounted on an electro-
 optical module (1) for limiting
 the amount of electro-magnetic
 interference emanating from
 the **housing** (2) of the electro-
 optical module (1). The electro-
 optical module (1) includes an
 optical sub-assembly (3) for
 converting electrical signals into
 optical signals or vice versa, and
 an input/output port (10) for
 transmitting the optical signal to
 the optical sub-assembly (3) via
 an **optical fiber** (12). The **bushing**
 (21) is in the form of a collar (21),
 which surrounds the
 input/output port (10) of the
 electro-optical module (1), or a

boot, which extends from one end of the input/output port (10) down a portion of the length of the **optical fiber** (12). <IMAGE>

[SS 4]