Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 152878

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

Senko Advanced Components, Inc.

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)	
Name	Junichi HASEGAWA		
Title	Executive Vice President		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

US Conec EX1002
IPR2024-00115
U.S. Patent No. 11,307,369

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Doc Code: TRACK1.REQ
Document Description: TrackOne Request

PTO/AIA/424 (04-14)

CERTIFICATION AND REQUEST FOR PRIORITIZED EXAMINATION UNDER 37 CFR 1.102(e) (Page 1 of 1)

First Named Inventor:	Kazuyoshi TAKANO	Nonprovisional Application Number (if known):	
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS A PART OF A RECONFIGURABLE OUTER HOUSING		

APPLICANT HEREBY CERTIFIES THE FOLLOWING AND REQUESTS PRIORITIZED EXAMINATION FOR THE ABOVE-IDENTIFIED APPLICATION.

1. The processing fee set forth in 37 CFR 1.17(i)(1) and the prioritized examination fee set forth in 37 CFR 1.17(c) have been filed with the request. The publication fee requirement is met because that fee, set forth in 37 CFR 1.18(d), is currently $0. The basic filing fee, search fee, and examination fee are filed with the request or have been already been paid. I understand that any required excess claims fees or application size fee must be paid for the application.

2. I understand that the application may not contain, or be amended to contain, more than four independent claims, more than thirty total claims, or any multiple dependent claims, and that any request for an extension of time will cause an outstanding Track I request to be dismissed.

3. The applicable box is checked below:

I. ☑ Original Application (Track One) - Prioritized Examination under § 1.102(e)(1)

i. (a) The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a). This certification and request is being filed with the utility application via EFS-Web.

---OR---

(b) The application is an original nonprovisional plant application filed under 35 U.S.C. 111(a). This certification and request is being filed with the plant application in paper.

ii. An executed inventor's oath or declaration under 37 CFR 1.63 or 37 CFR 1.64 for each inventor, **or** the application data sheet meeting the conditions specified in 37 CFR 1.53(f)(3)(i) is filed with the application.

II. ☐ Request for Continued Examination - Prioritized Examination under § 1.102(e)(2)

i. A request for continued examination has been filed with, or prior to, this form.
ii. If the application is a utility application, this certification and request is being filed via EFS-Web.
iii. The application is an original nonprovisional utility application filed under 35 U.S.C. 111(a), or is a national stage entry under 35 U.S.C. 371.
iv. This certification and request is being filed prior to the mailing of a first Office action responsive to the request for continued examination.
v. No prior request for continued examination has been granted prioritized examination status under 37 CFR 1.102(e)(2).

Signature /Jonathan Pollmann/	Date 2021-07-08
Name (Print/Typed) Jonathan Pollmann	Practitioner Registration Number 71702

Note: *This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required.**

☐ *Total of _____ forms are submitted.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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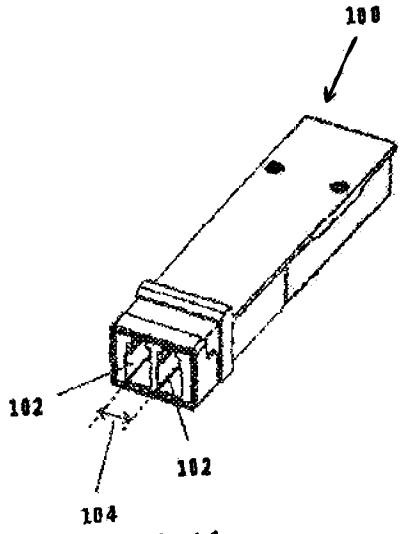


FIG. 1A
(Prior Art)

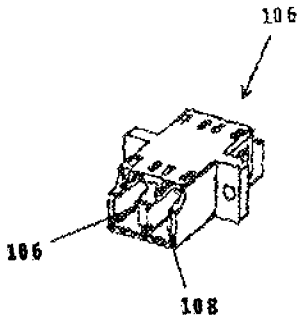


FIG. 1B
(Prior Art)

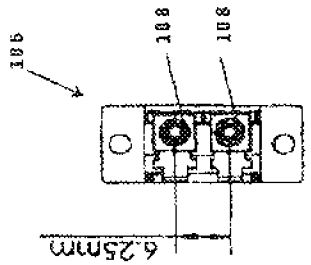


FIG. 1D
(Prior Art)

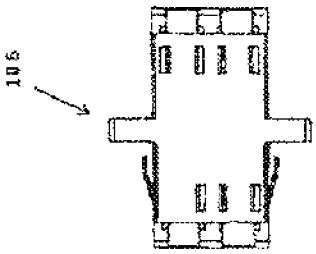


FIG. 1C
(Prior Art)

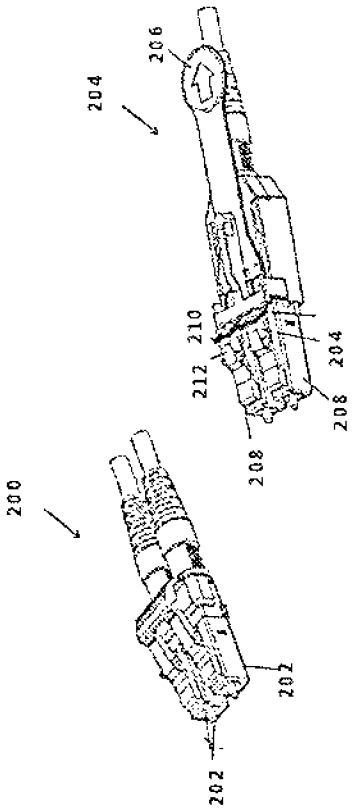


FIG. 2A
(Prior Art)

FIG. 2B
(Prior Art)

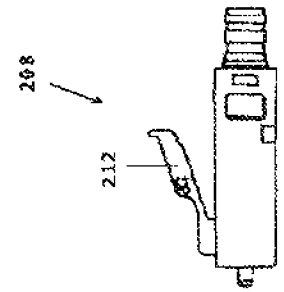


FIG. 2D
(Prior Art)

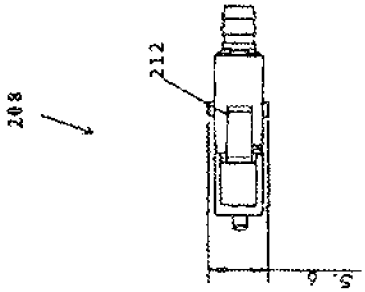


FIG. 2C
(Prior Art)

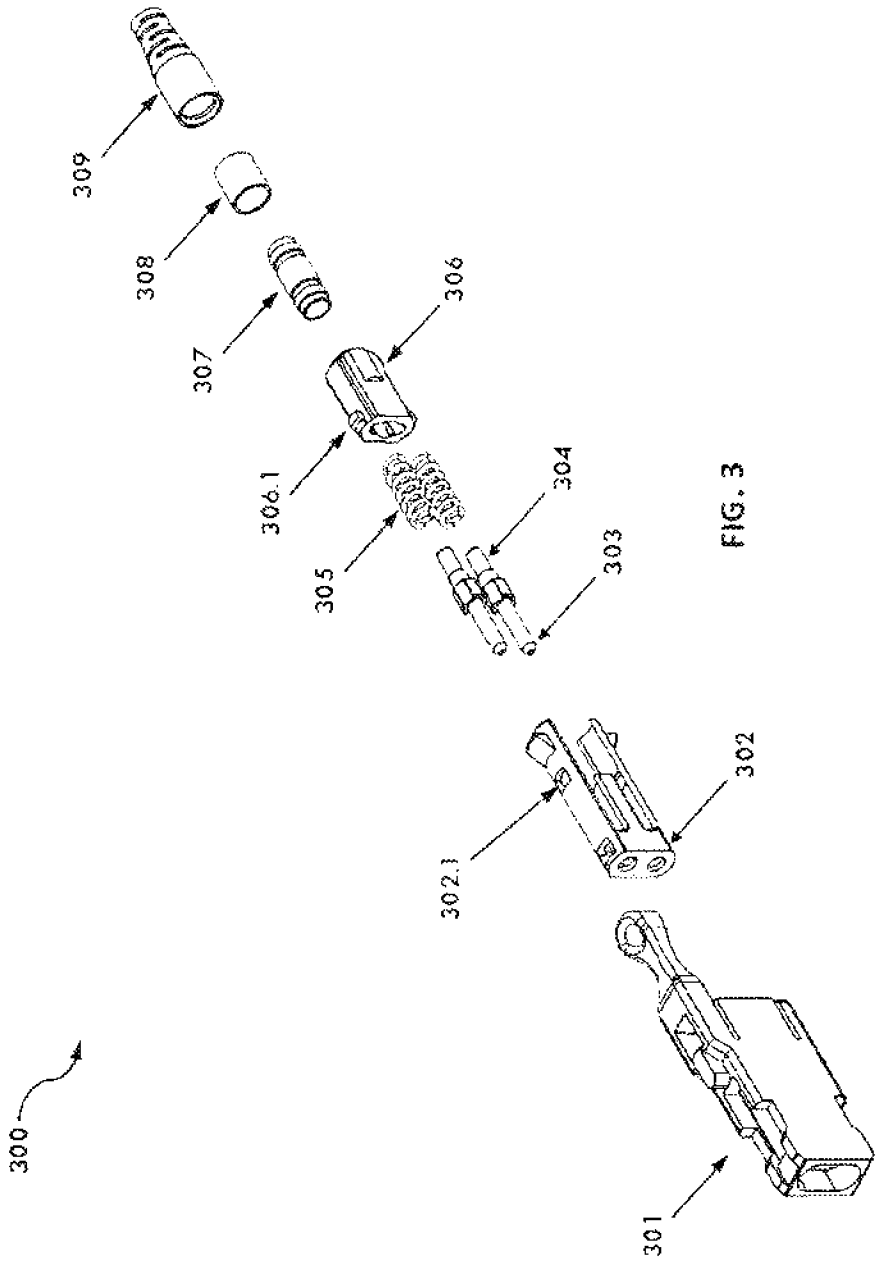


FIG. 3

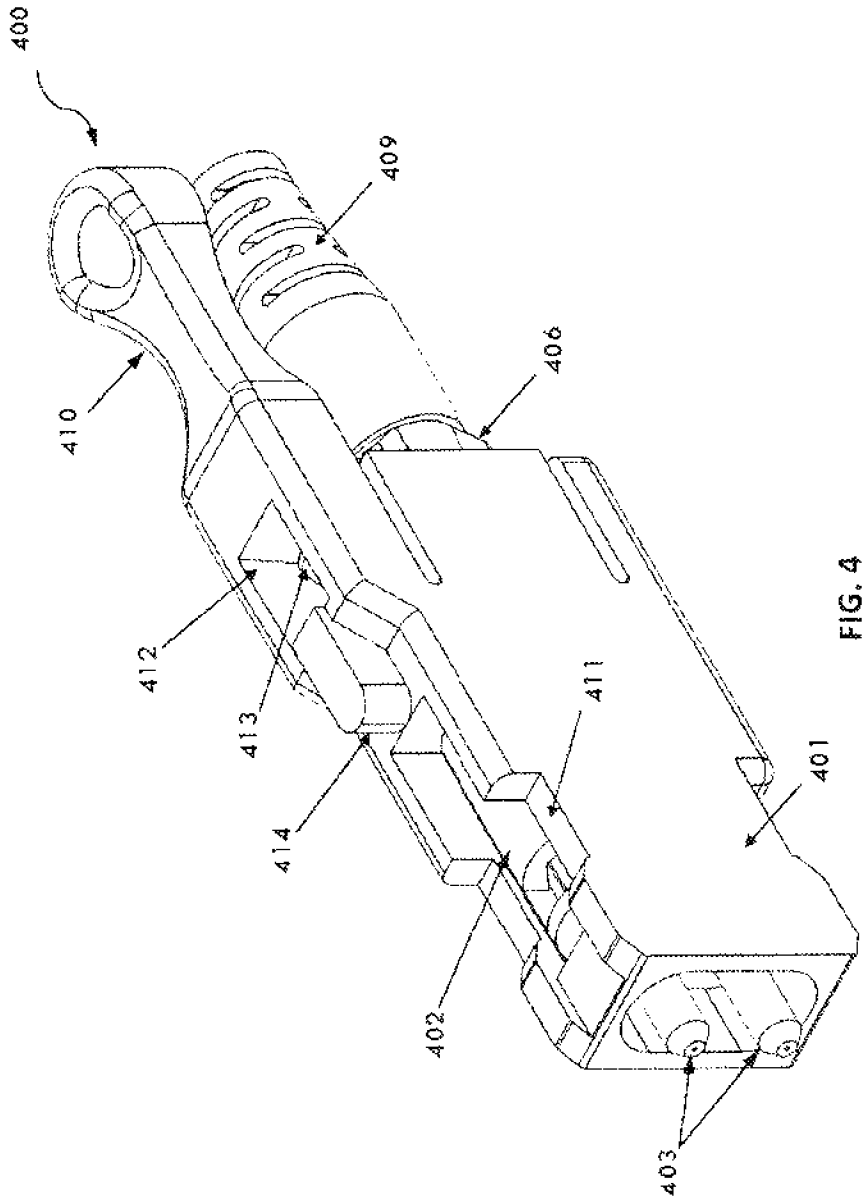


FIG. 4

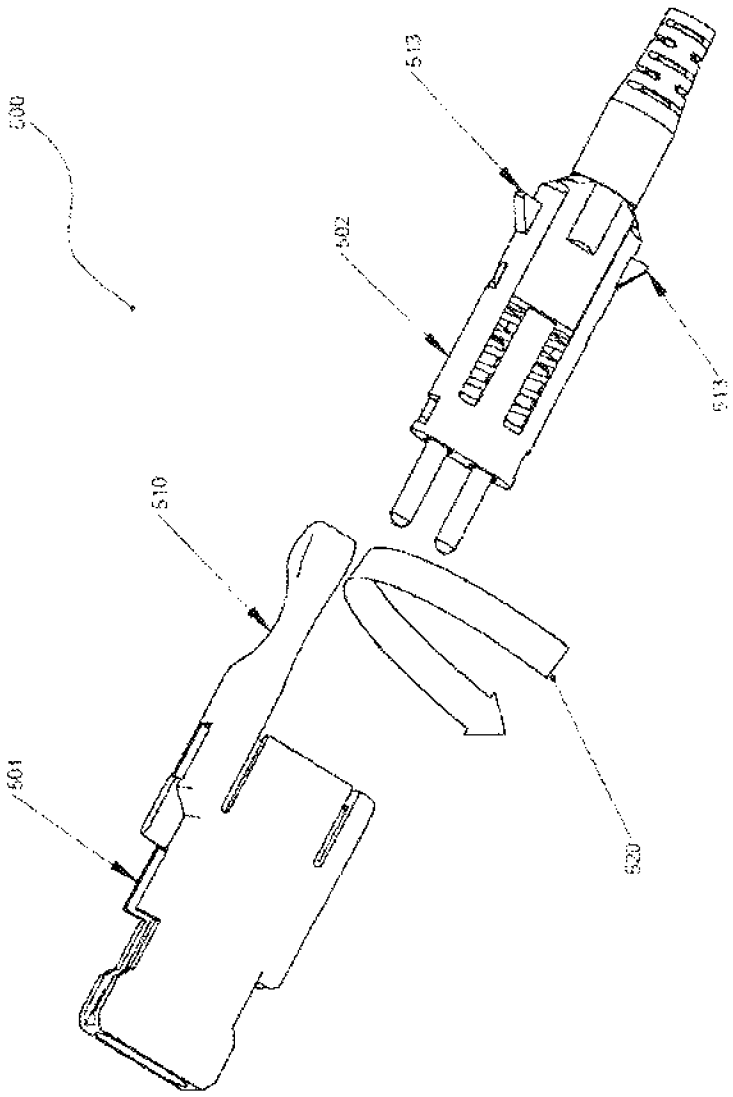


FIG. 5

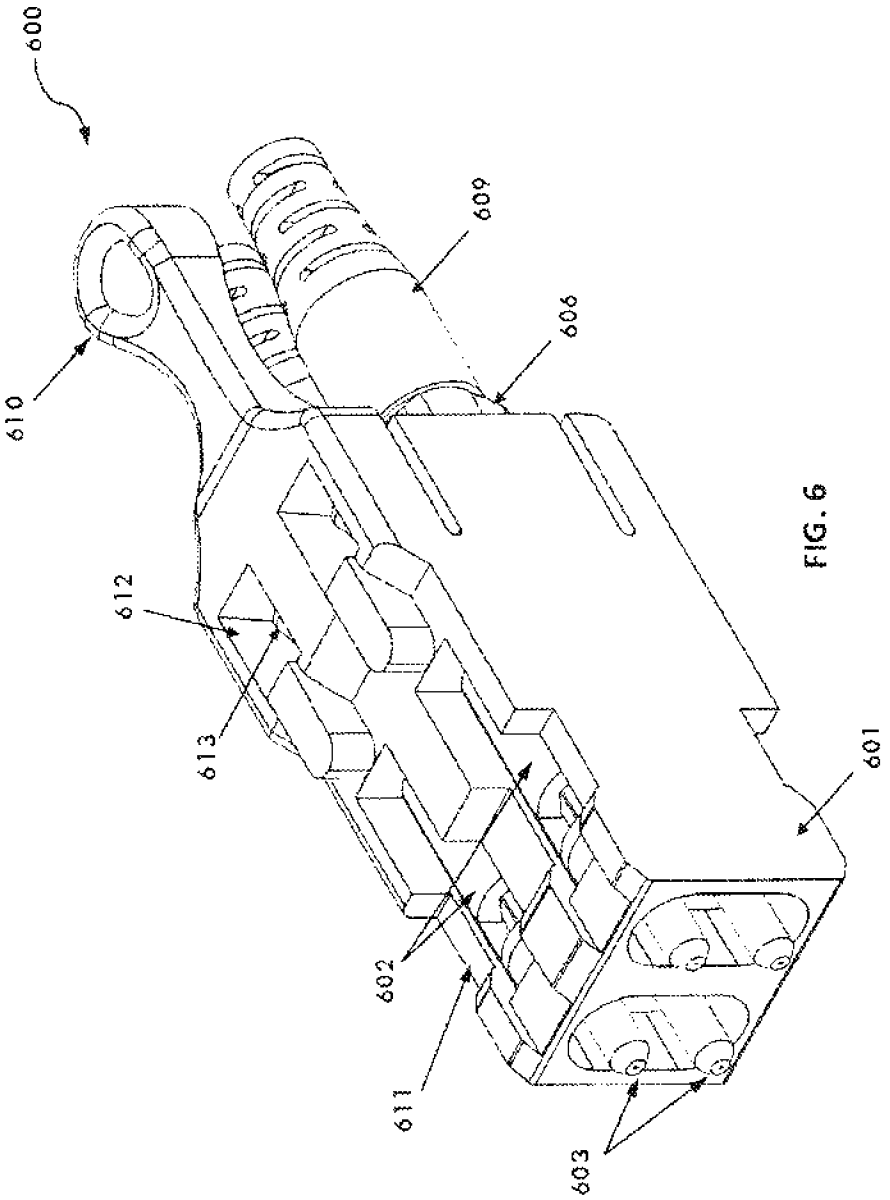


FIG. 6

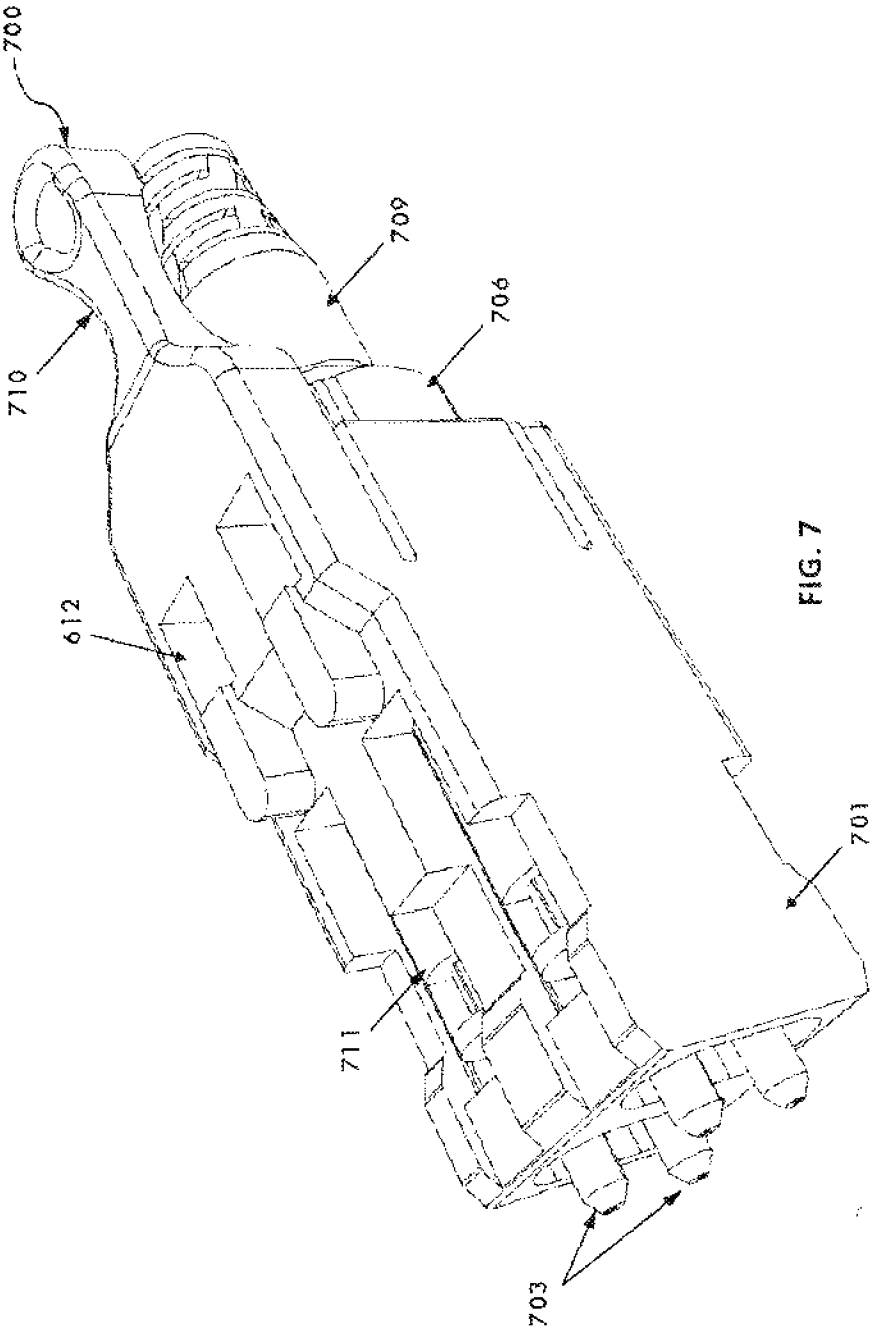


FIG. 7

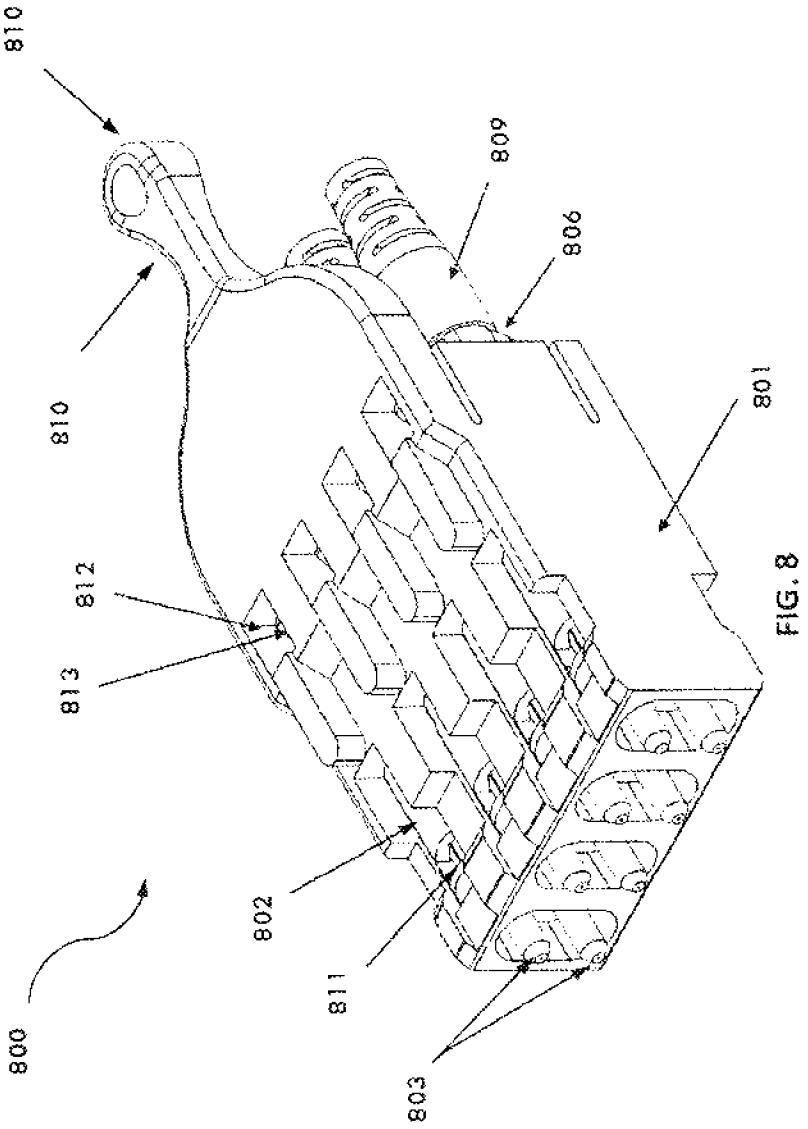


FIG. 8

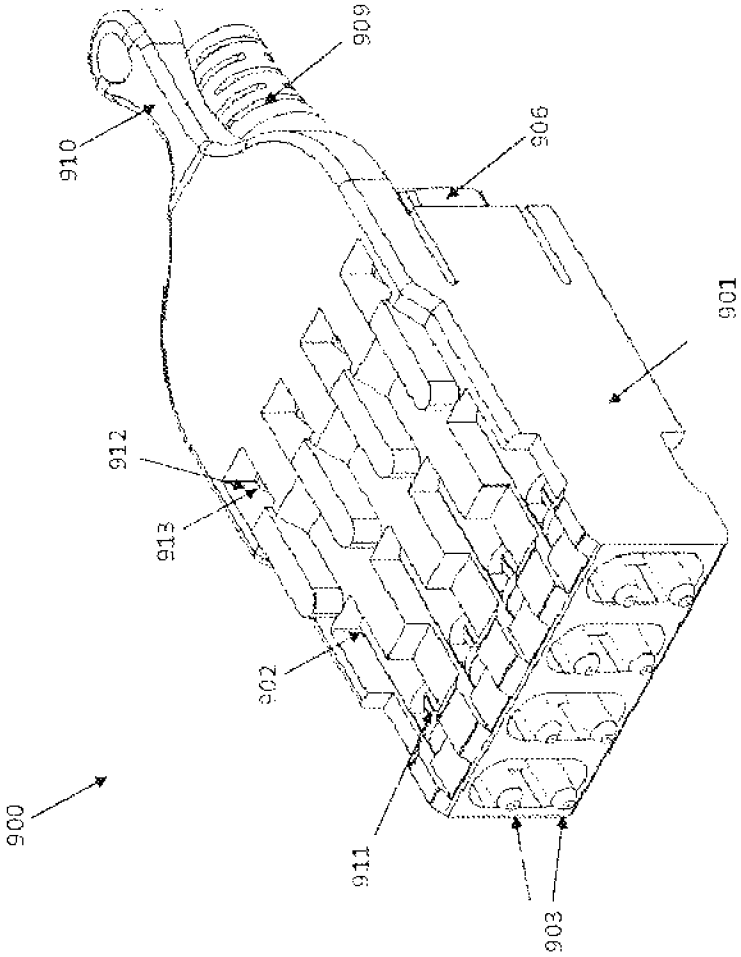


FIG. 9

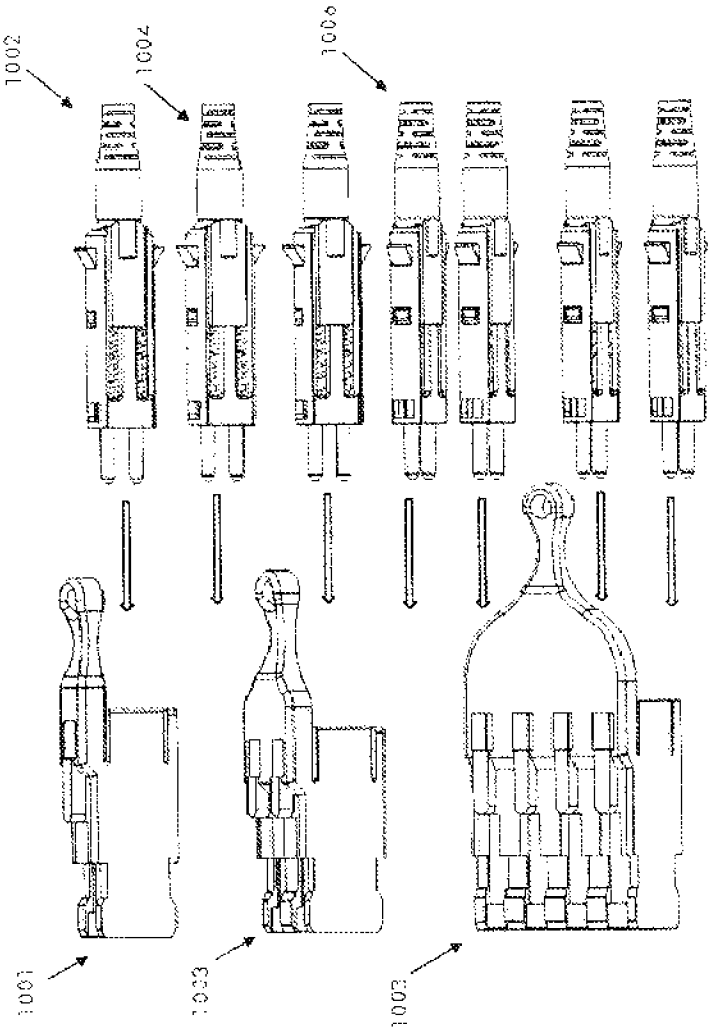


FIG. 10

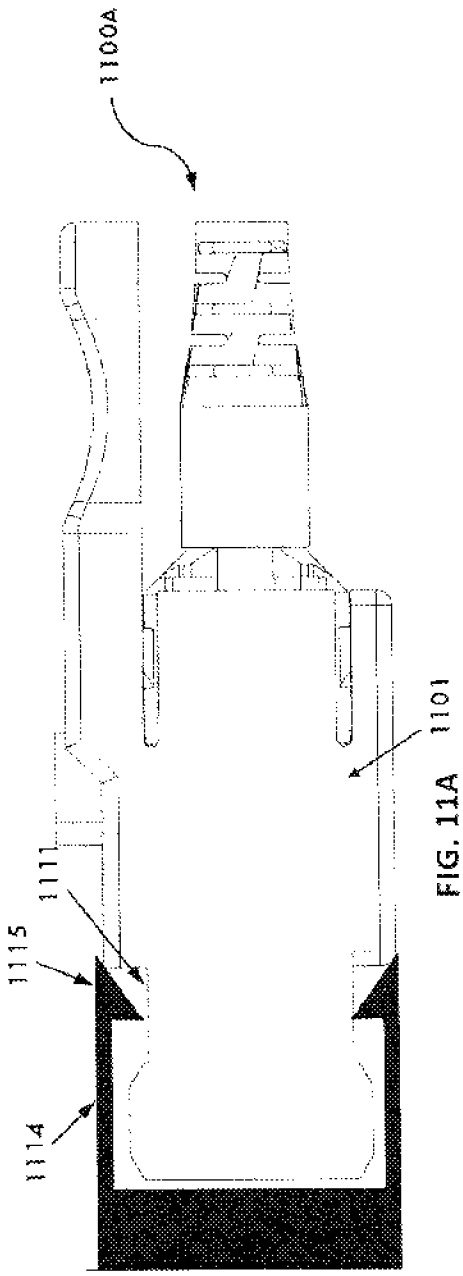


FIG. 11A

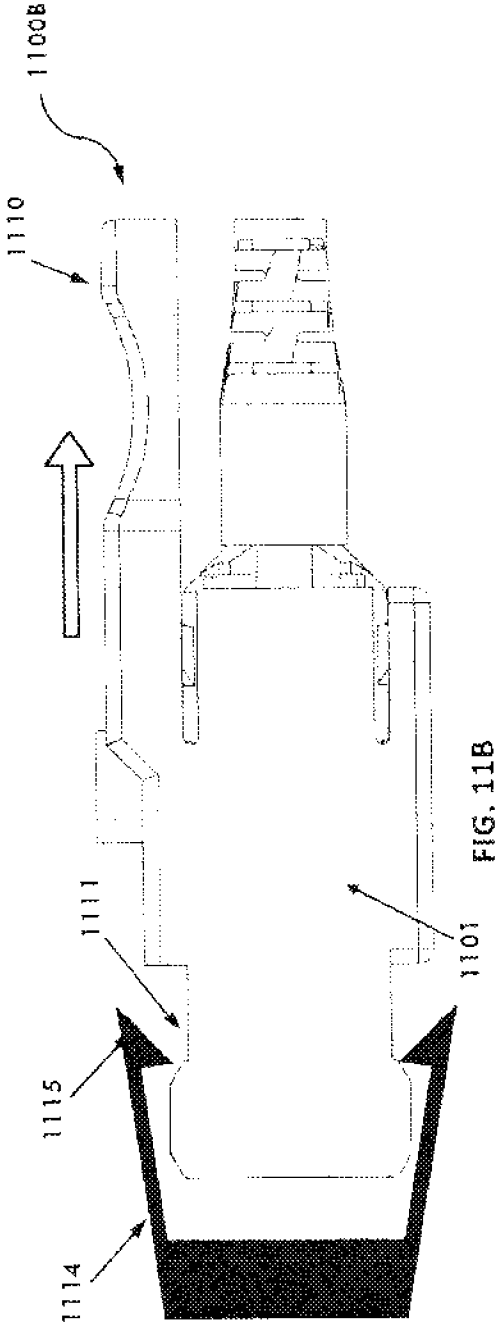


FIG. 11B

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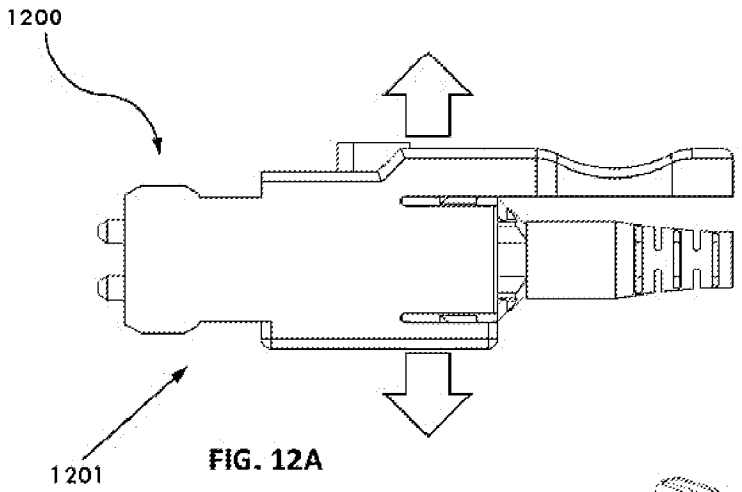


FIG. 12A

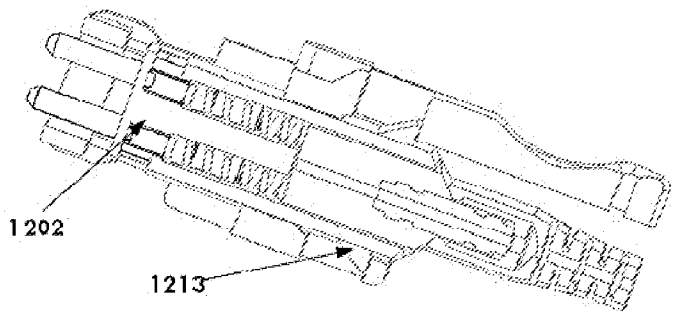


FIG. 12B

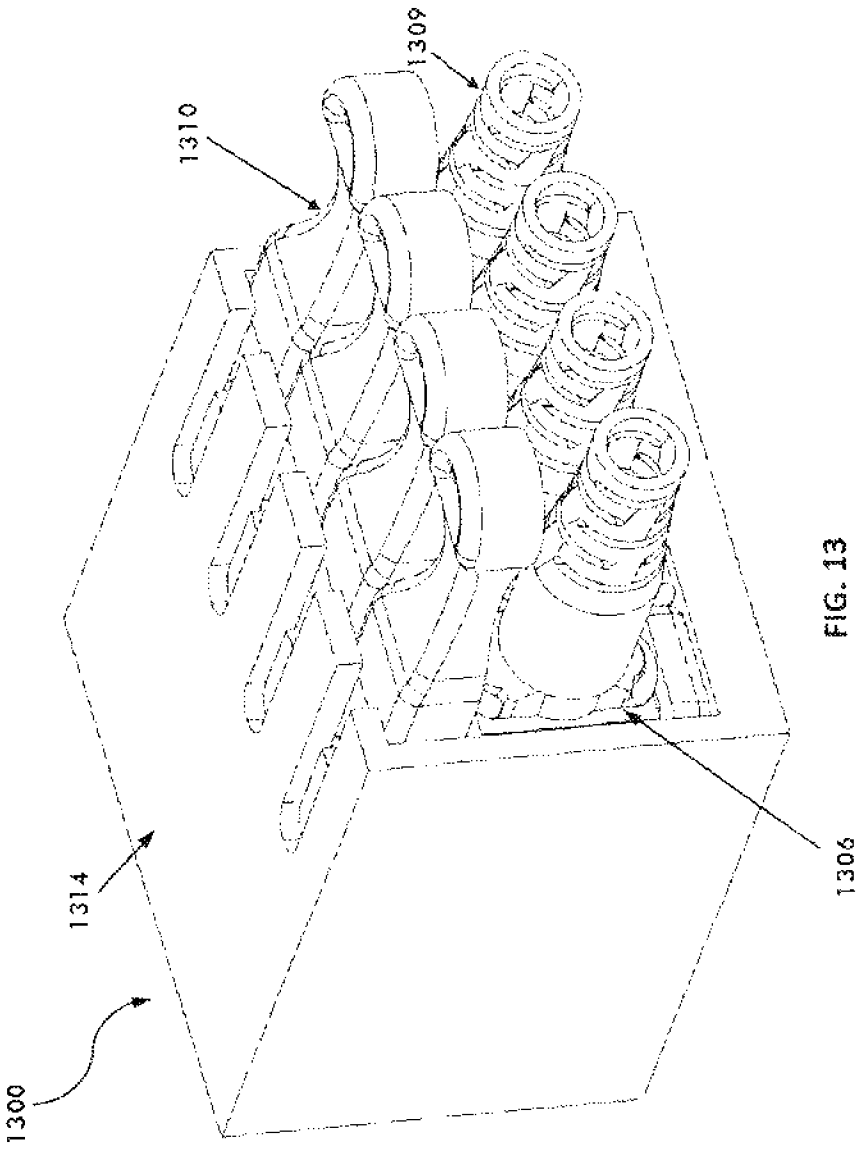


FIG. 13

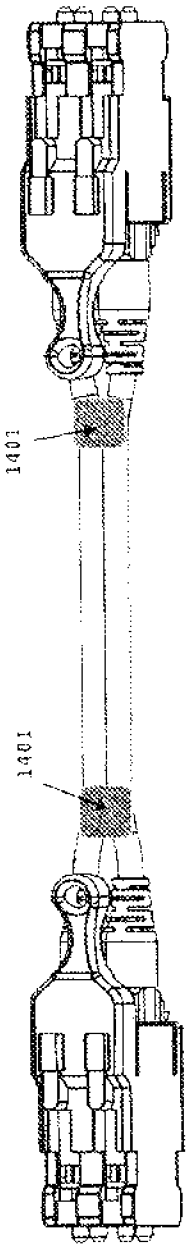


FIG. 14A

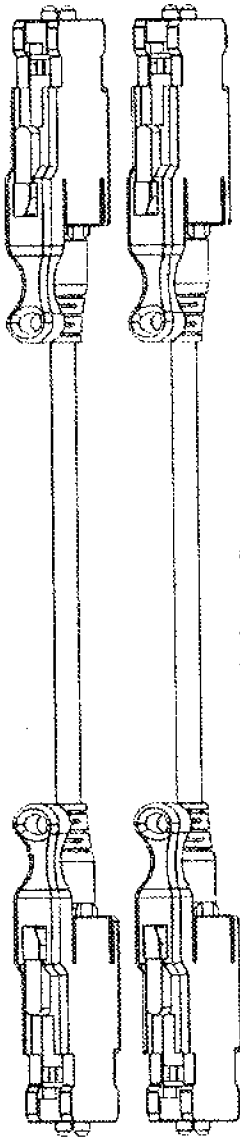


FIG. 14B

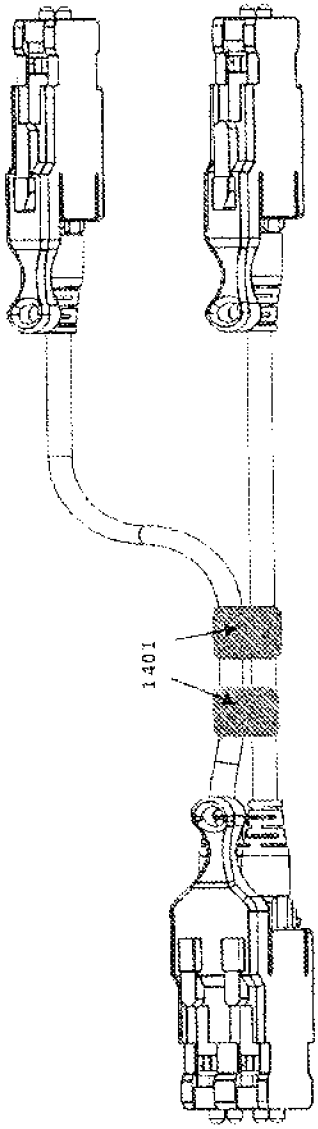


FIG. 14C

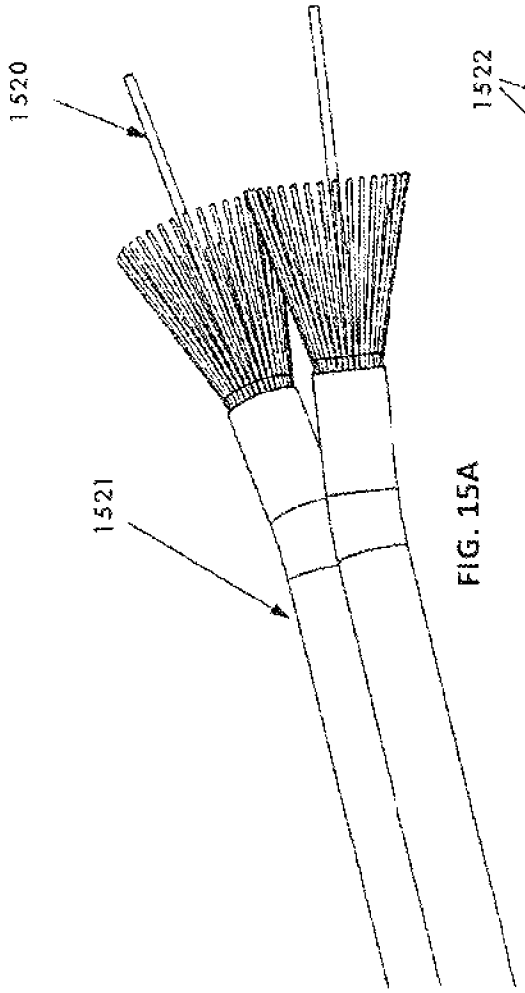


FIG. 15A

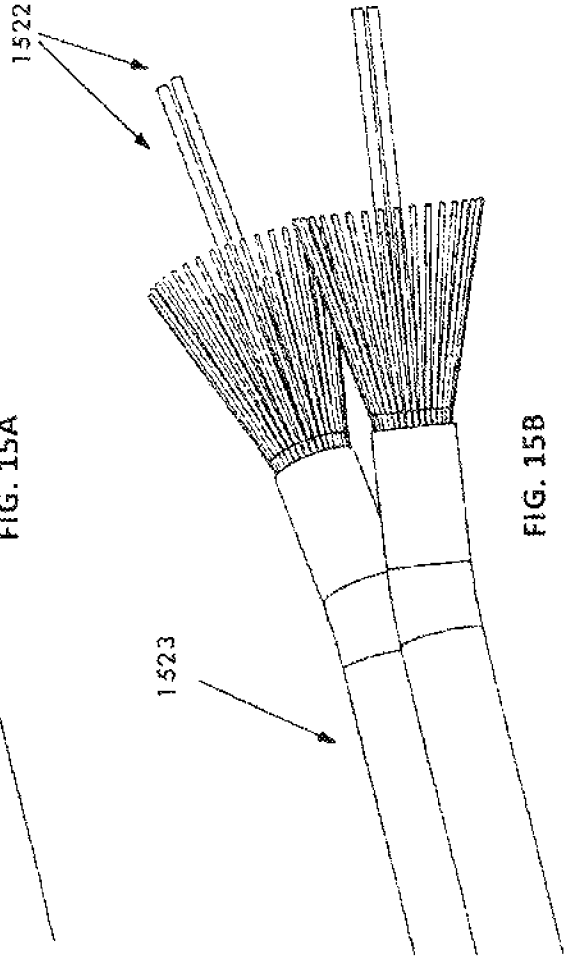


FIG. 15B

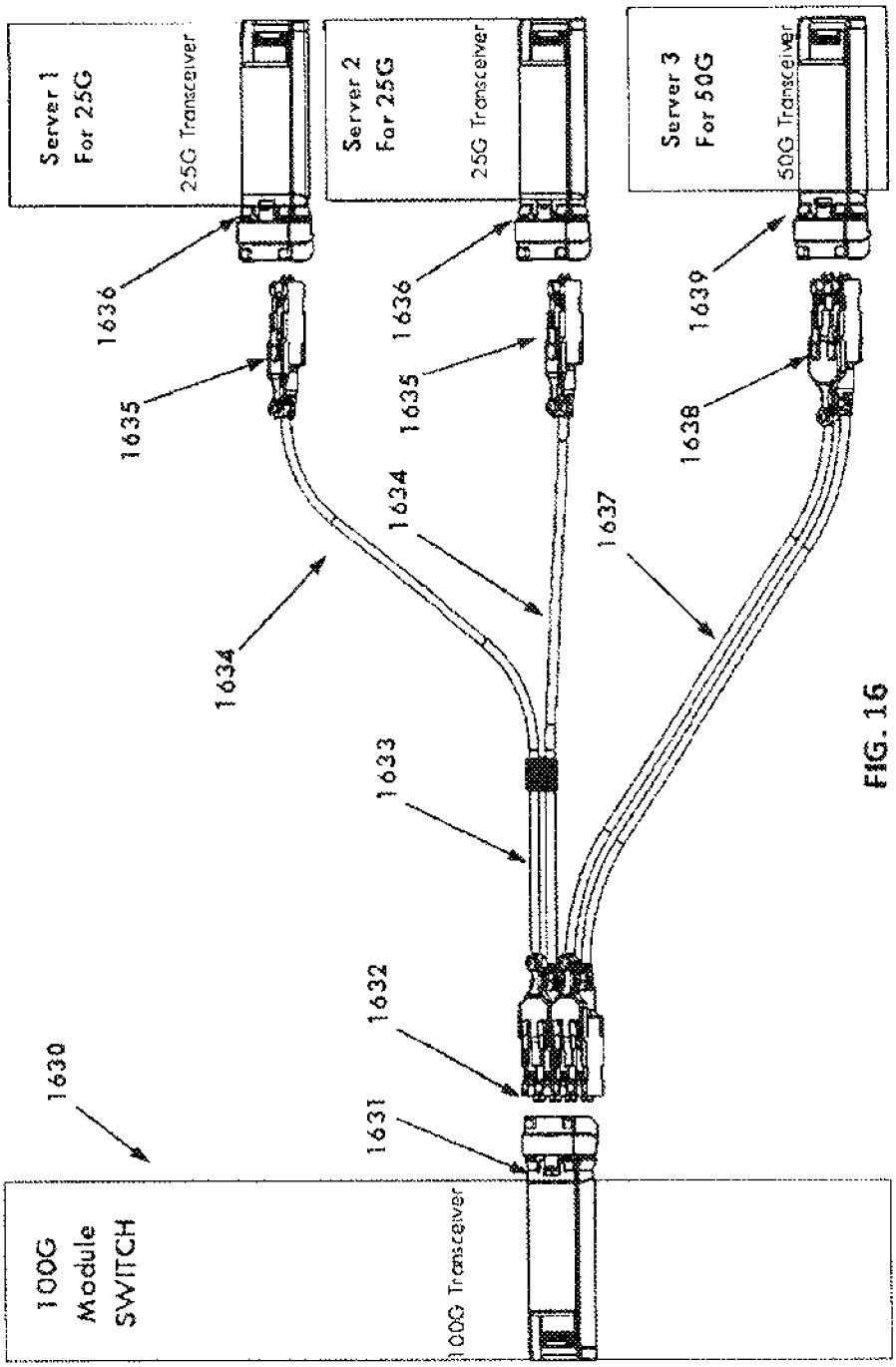

Server 1
For 25G
25G Transceiver
Server 2
For 25G
25G Transceiver
Server 3
For 50G
50G Transceiver
100G
Module
SWITCH
100G Transceiver
1630
1631
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FIG. 16

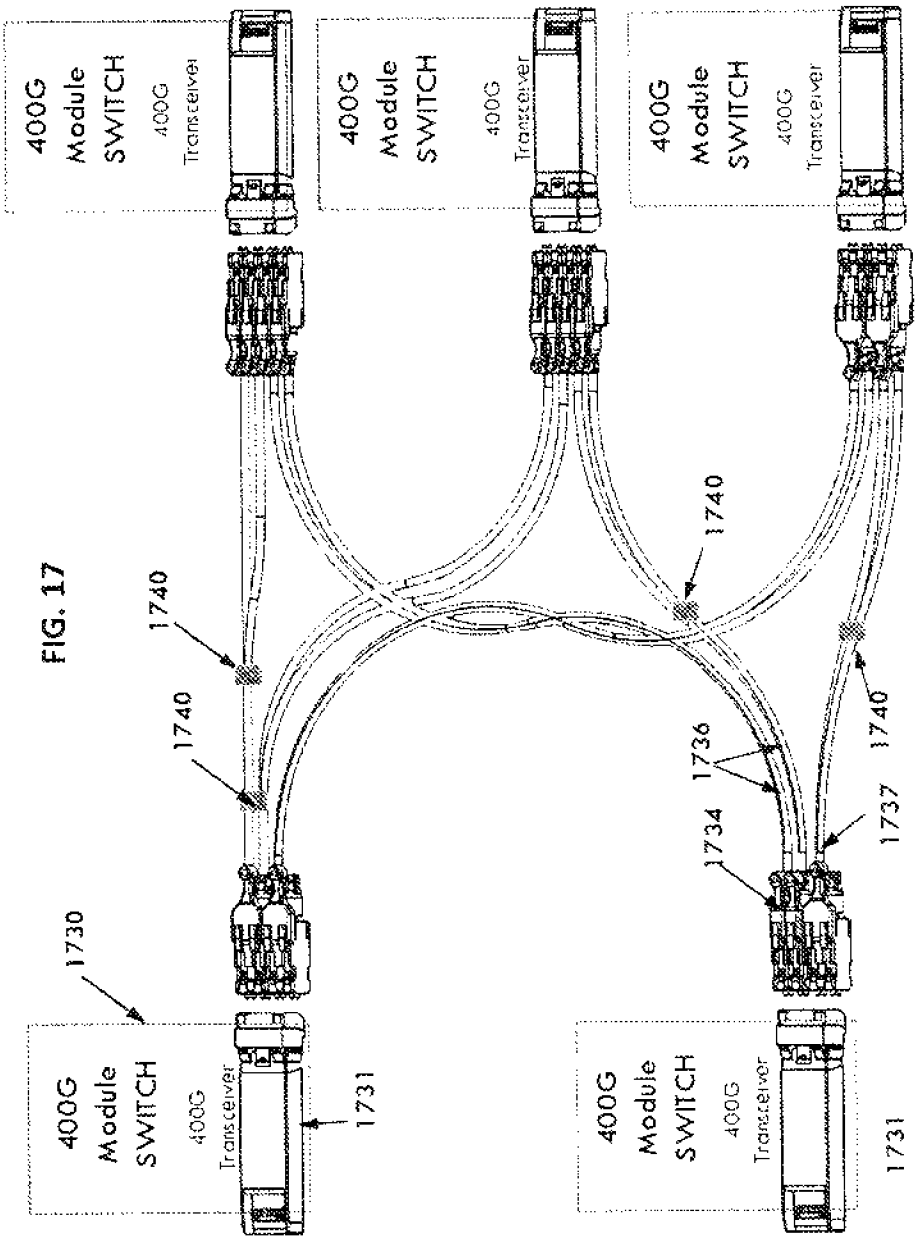

400G Module SWITCH
400G Transceiver
400G Module SWITCH
400G Transceiver
400G Module SWITCH
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FIG. 17

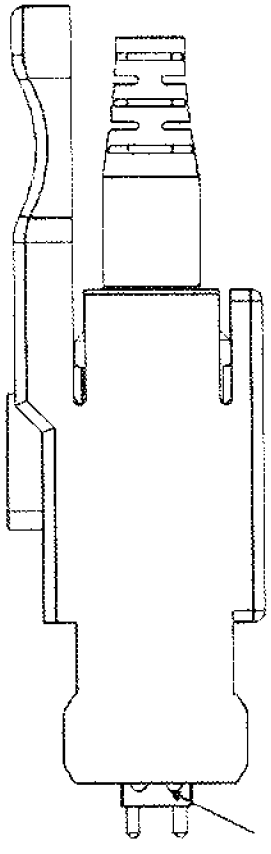


FIG. 18A

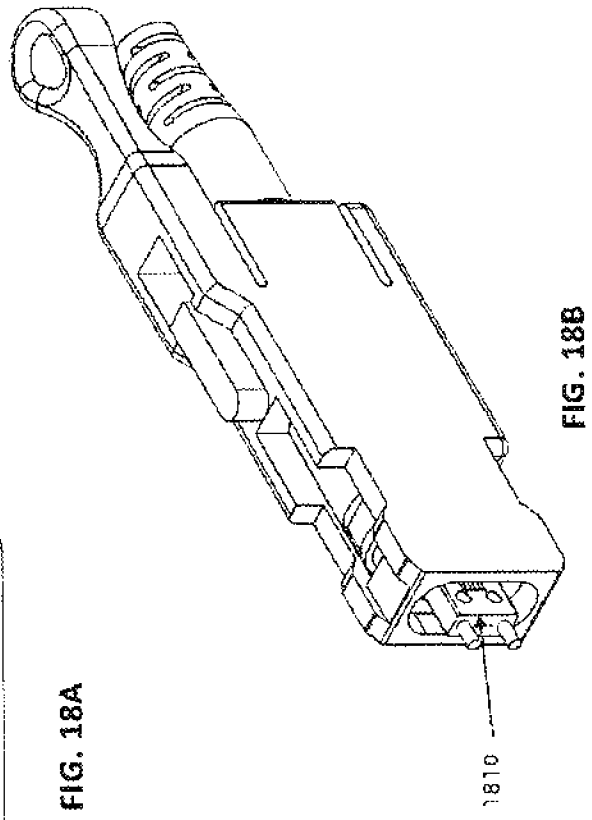


FIG. 18B

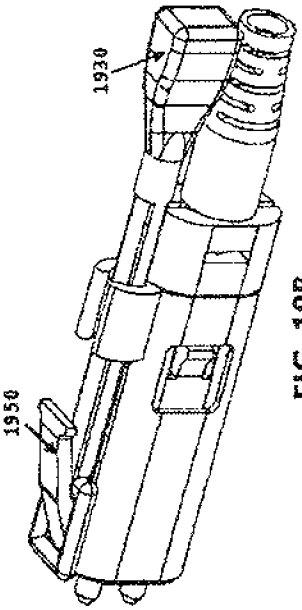


FIG. 19B

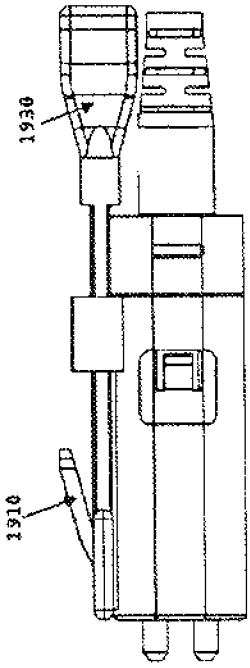


FIG. 19A

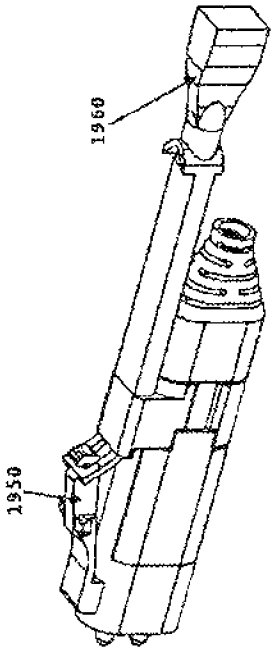


FIG. 19D

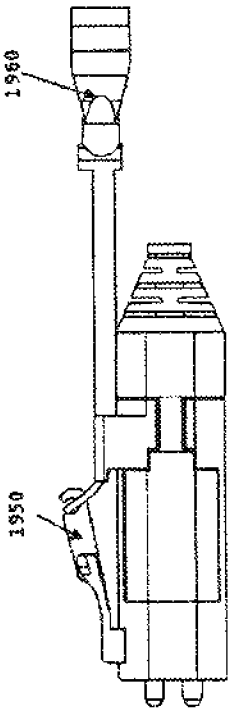


FIG. 19C

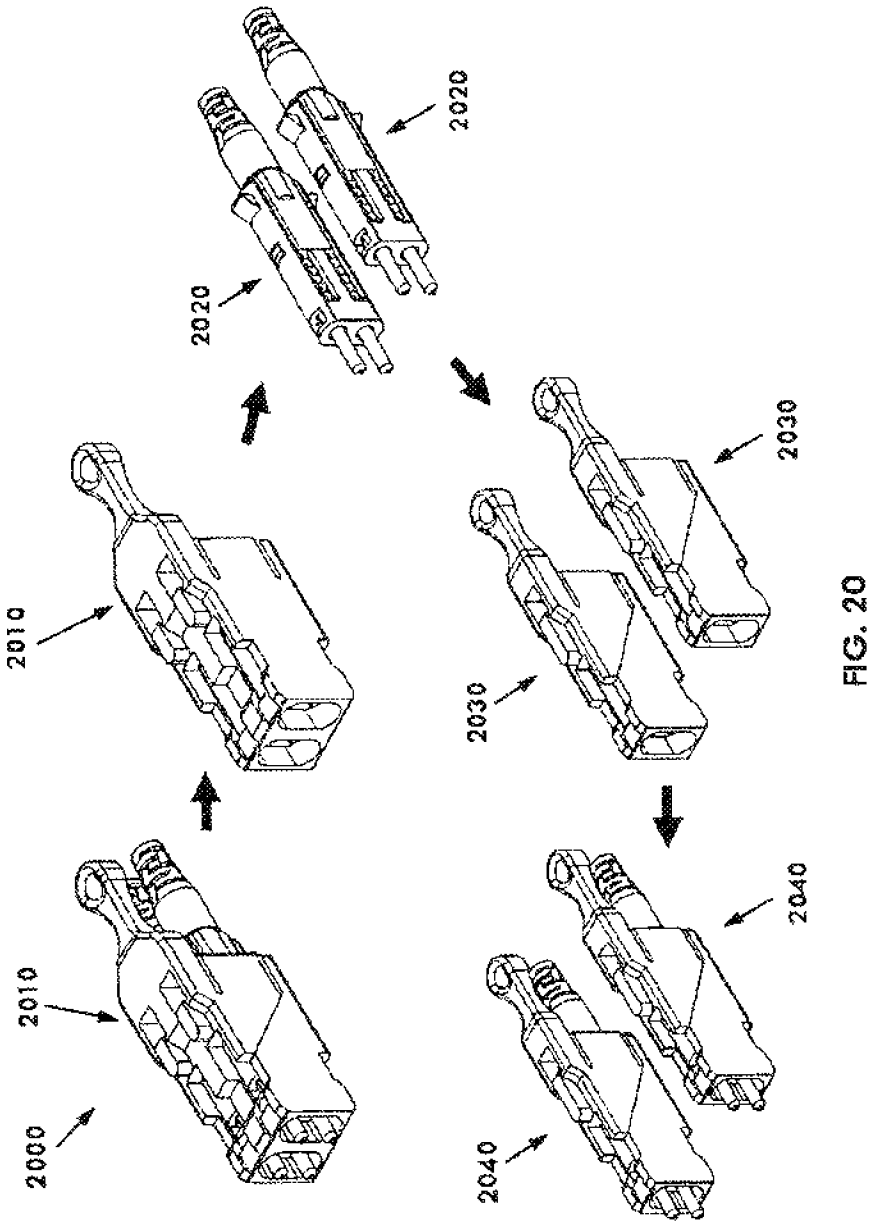


FIG. 20

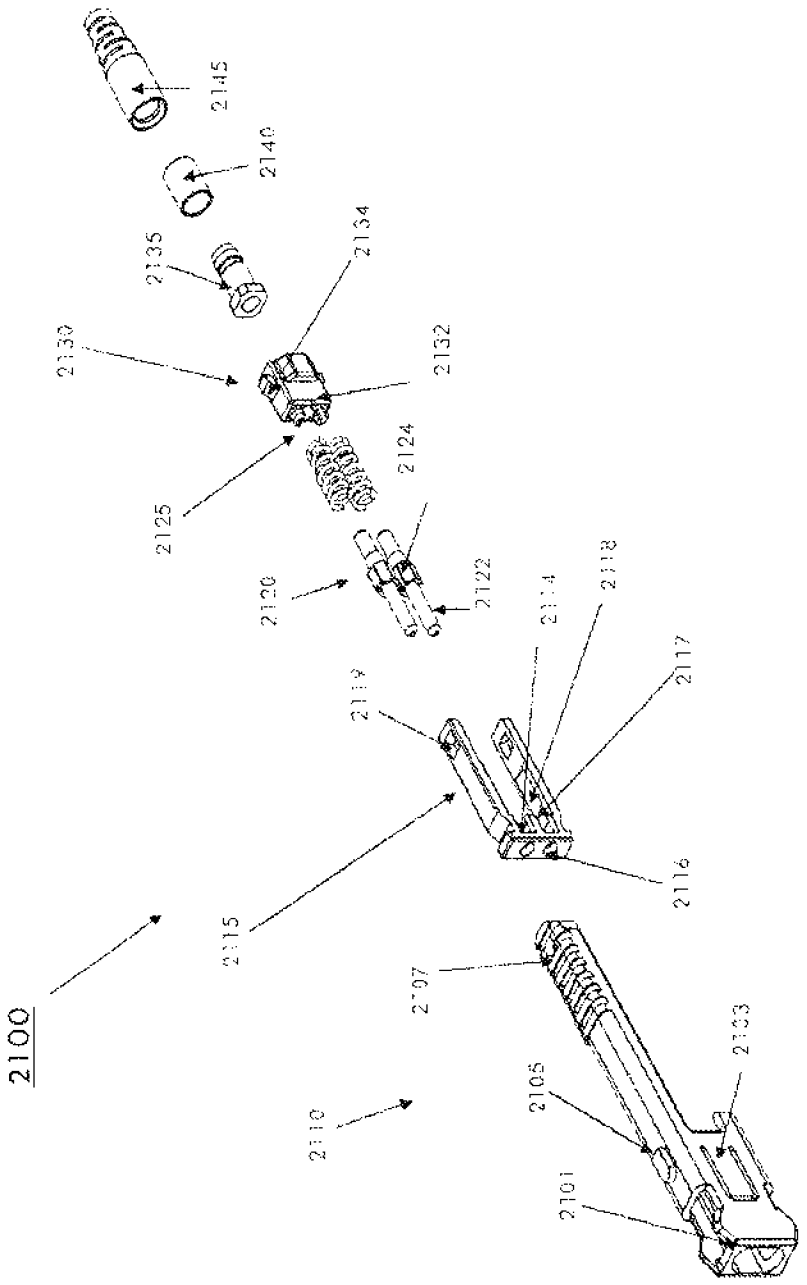

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FIG. 21A

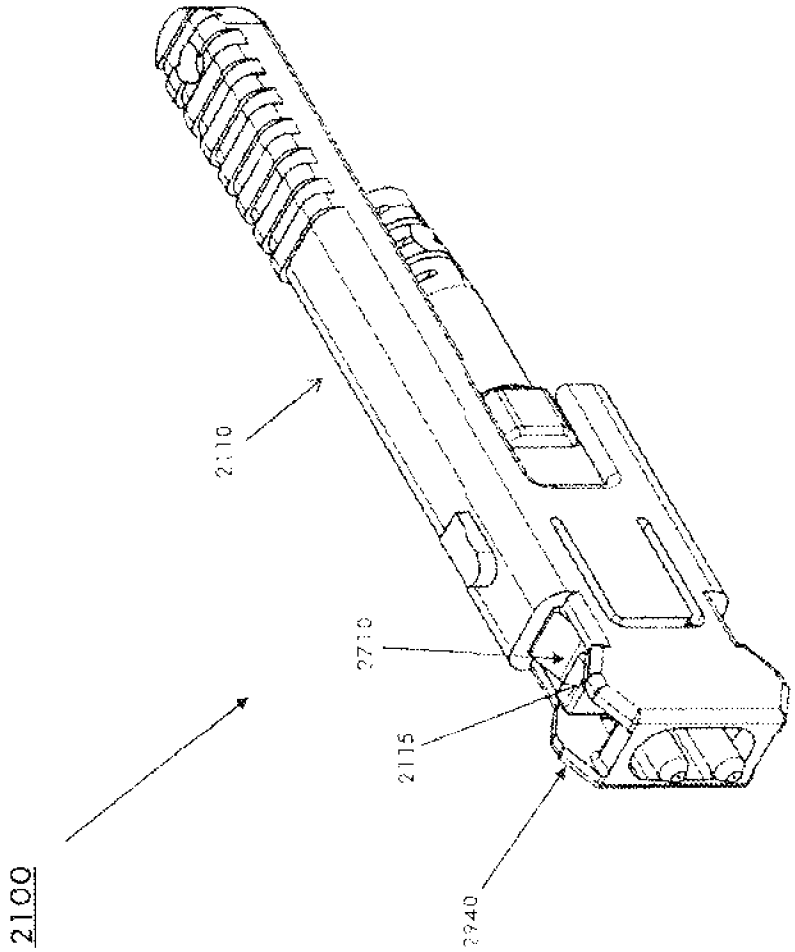


FIG. 21B

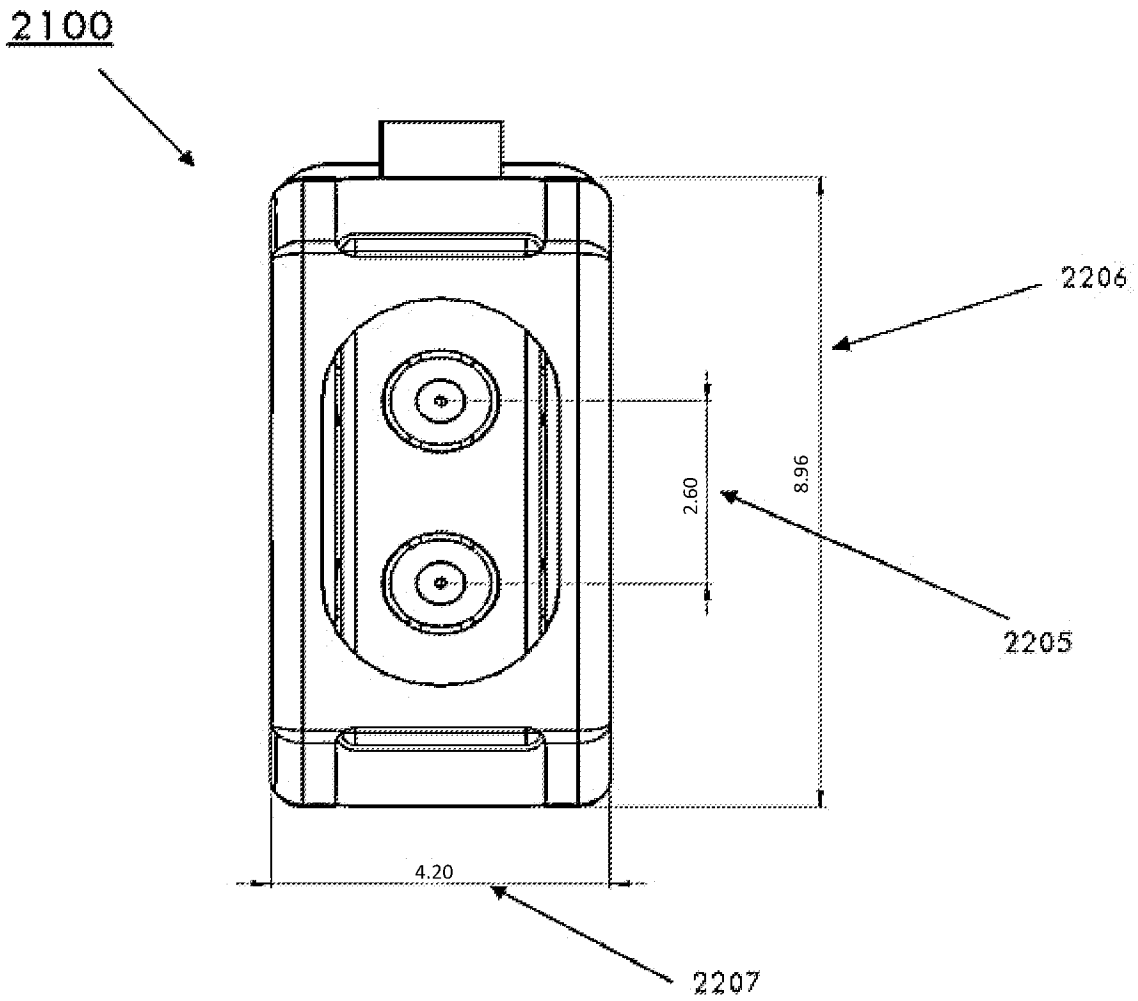


FIG. 22

0029

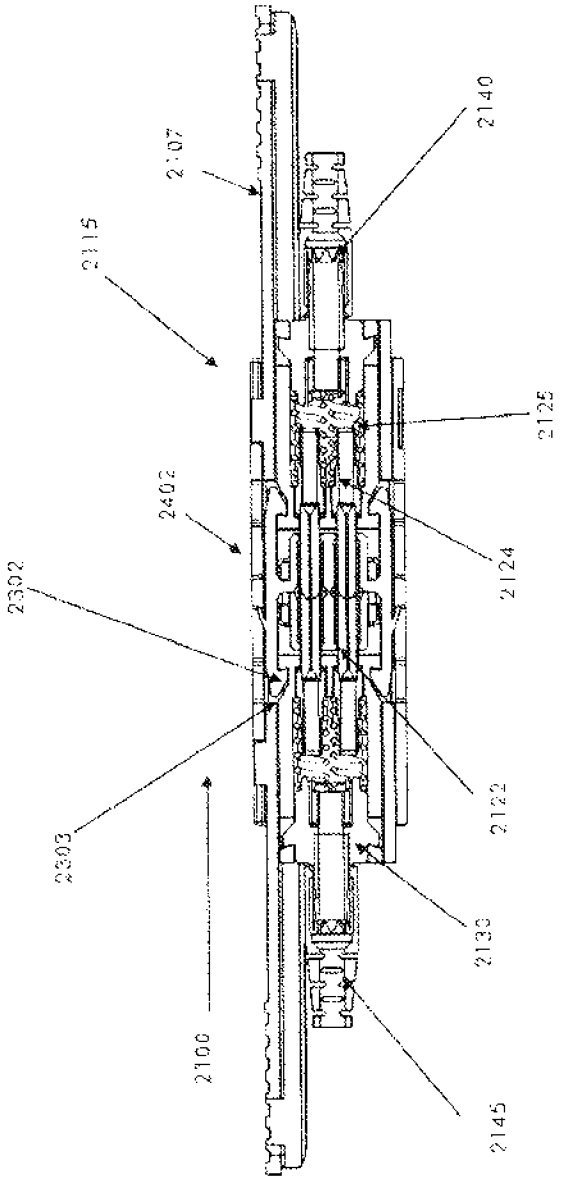


FIG. 23A

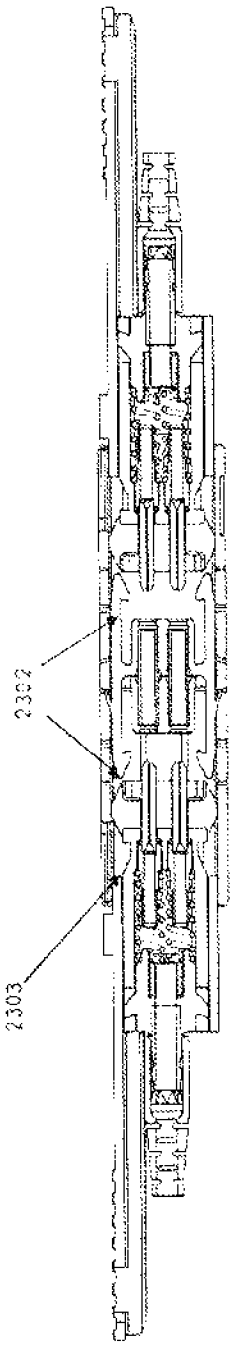


FIG. 23B

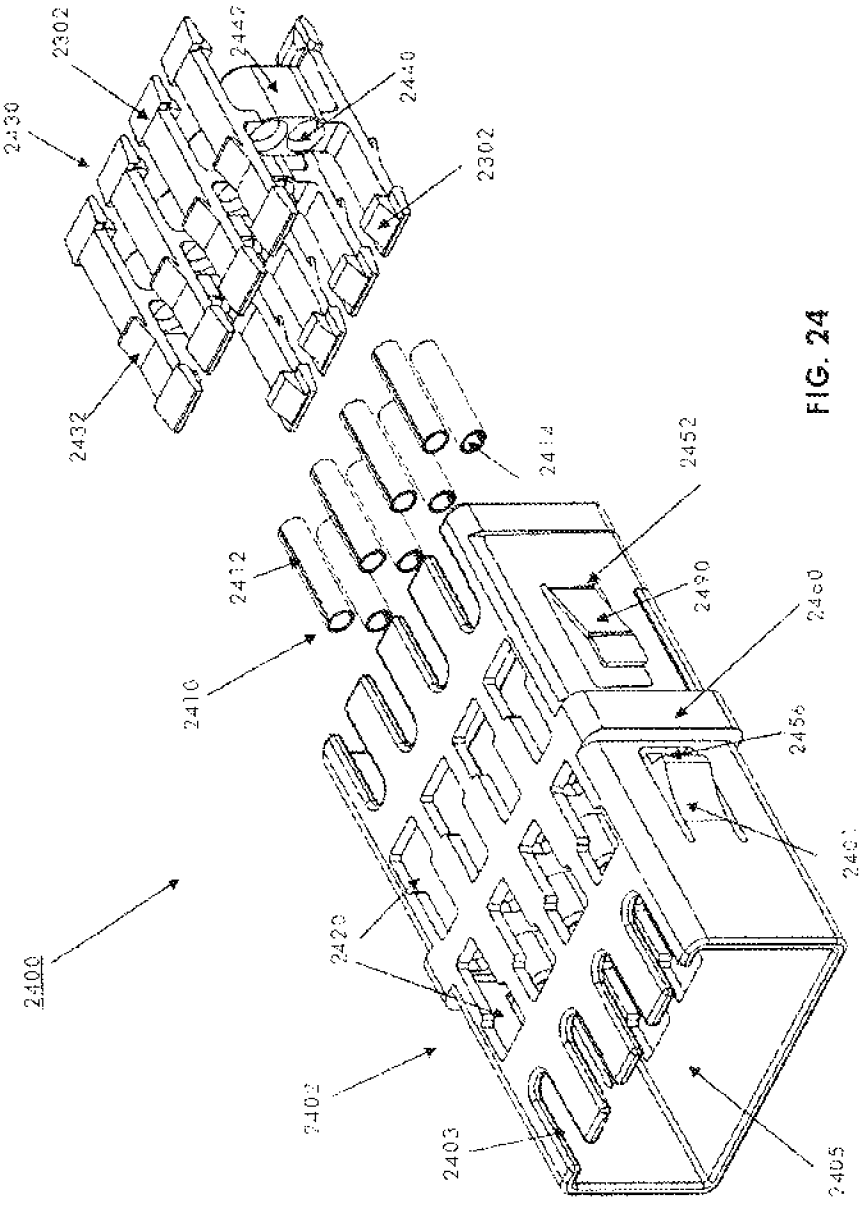

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FIG. 24

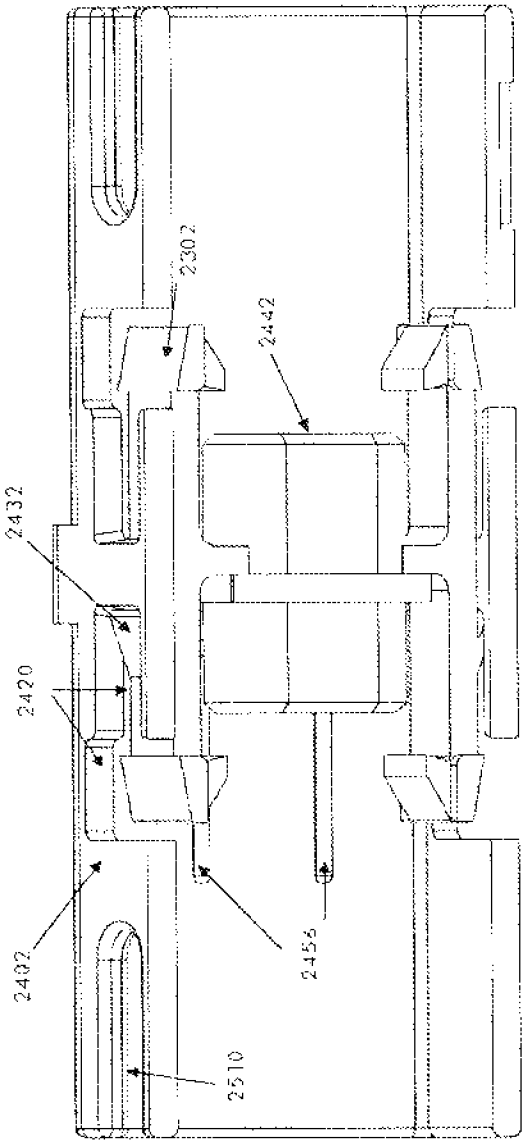


FIG. 25A

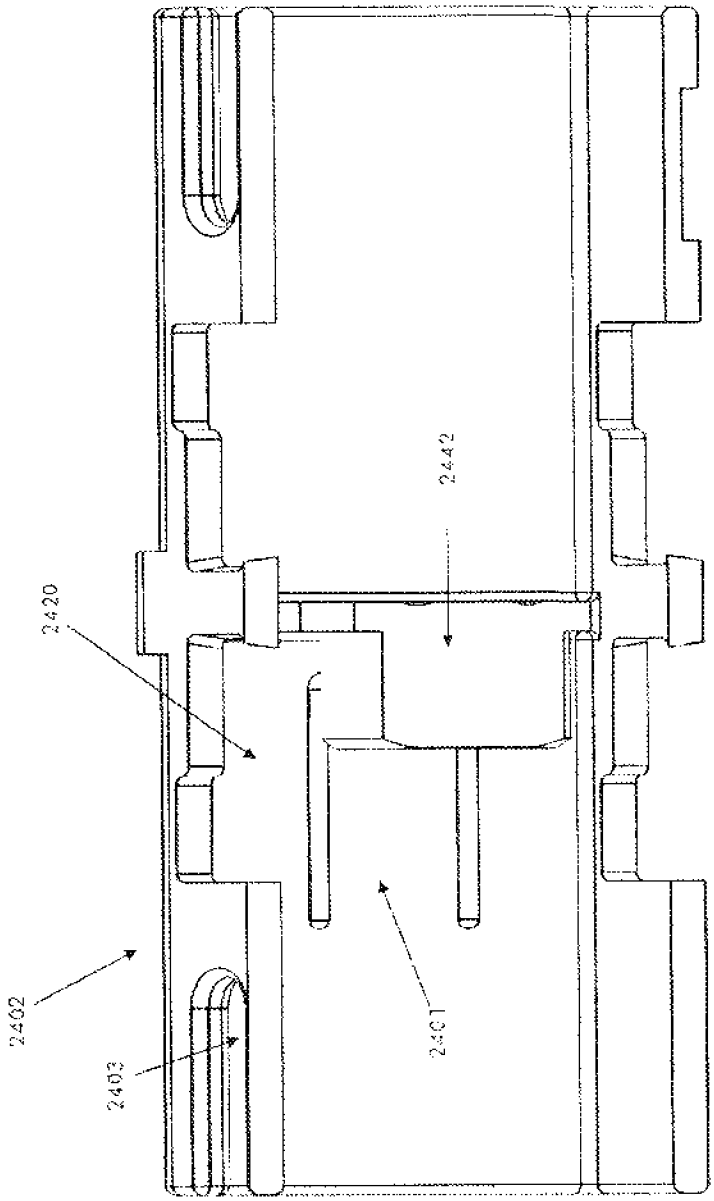


FIG. 25B

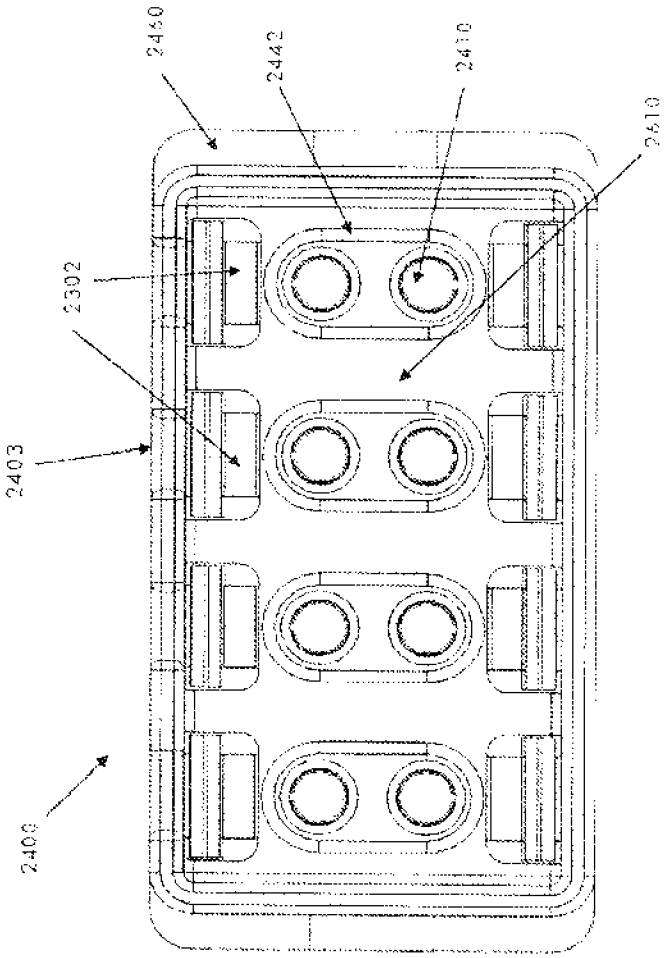


FIG. 26

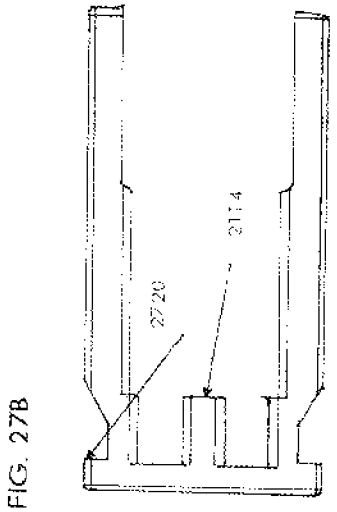


FIG. 27B

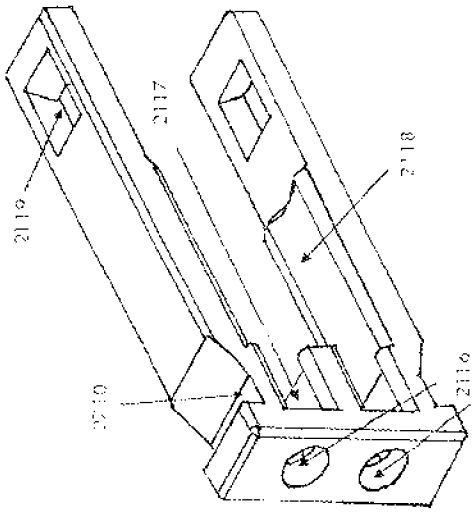


FIG. 27A

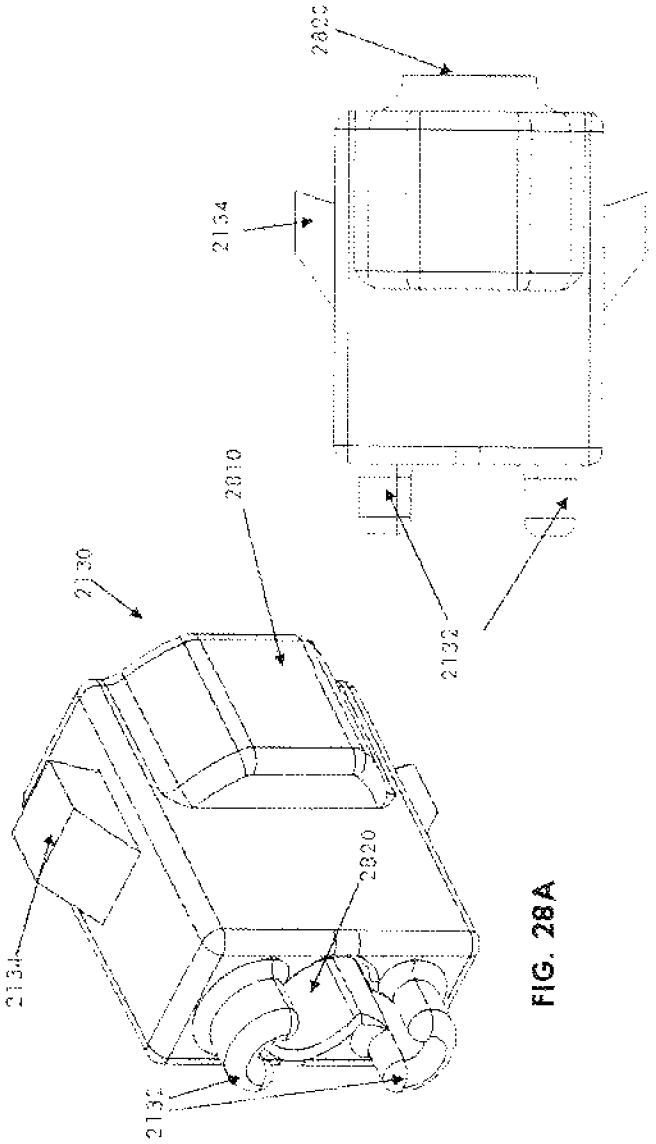


FIG. 28B

FIG. 28A

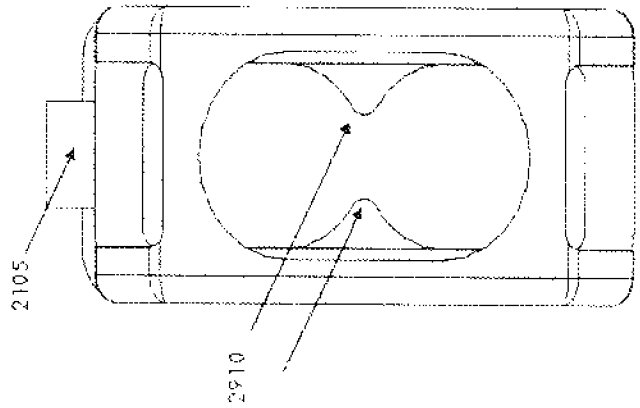


FIG. 29B

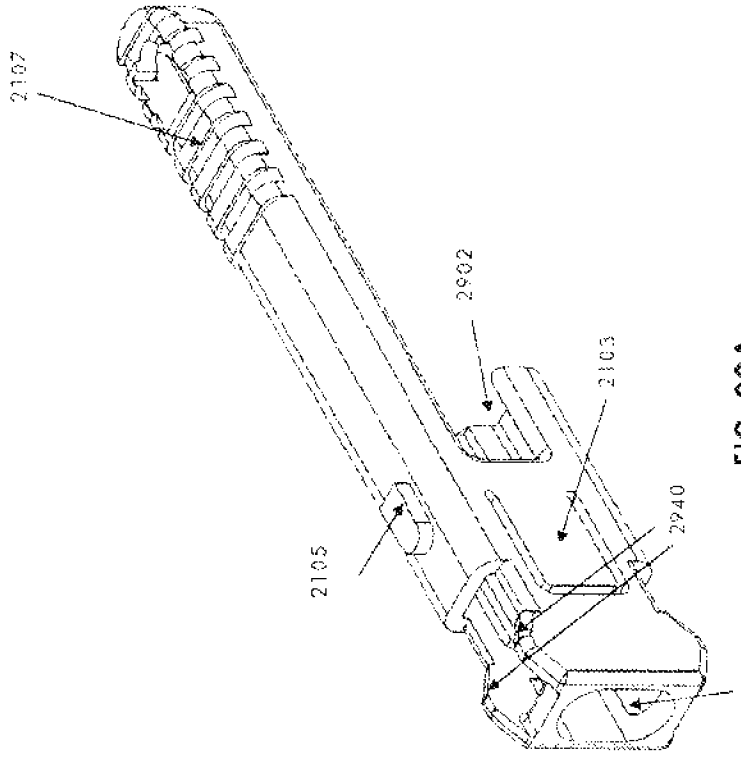


FIG. 29A

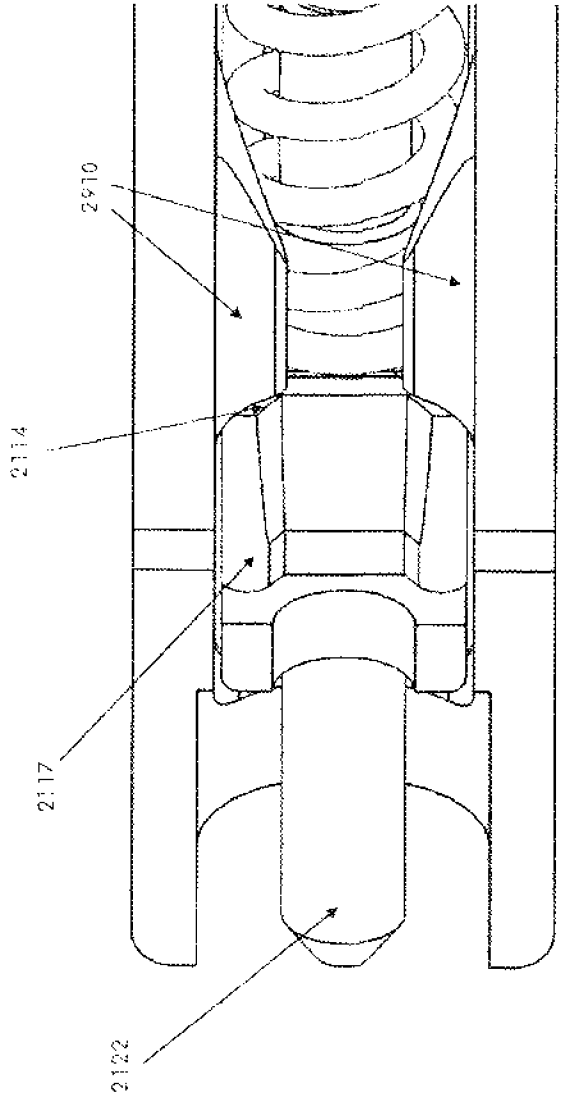


FIG. 29C

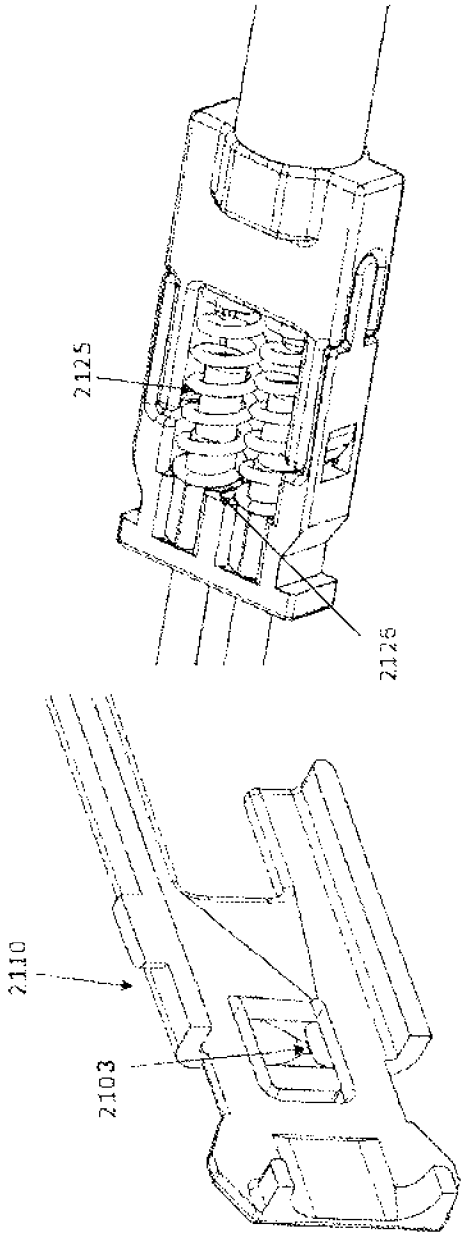


FIG. 29D

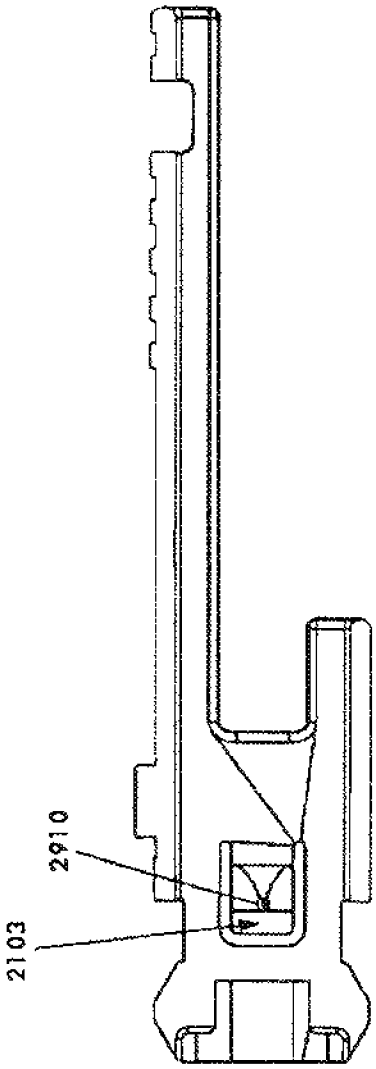


FIG. 29E

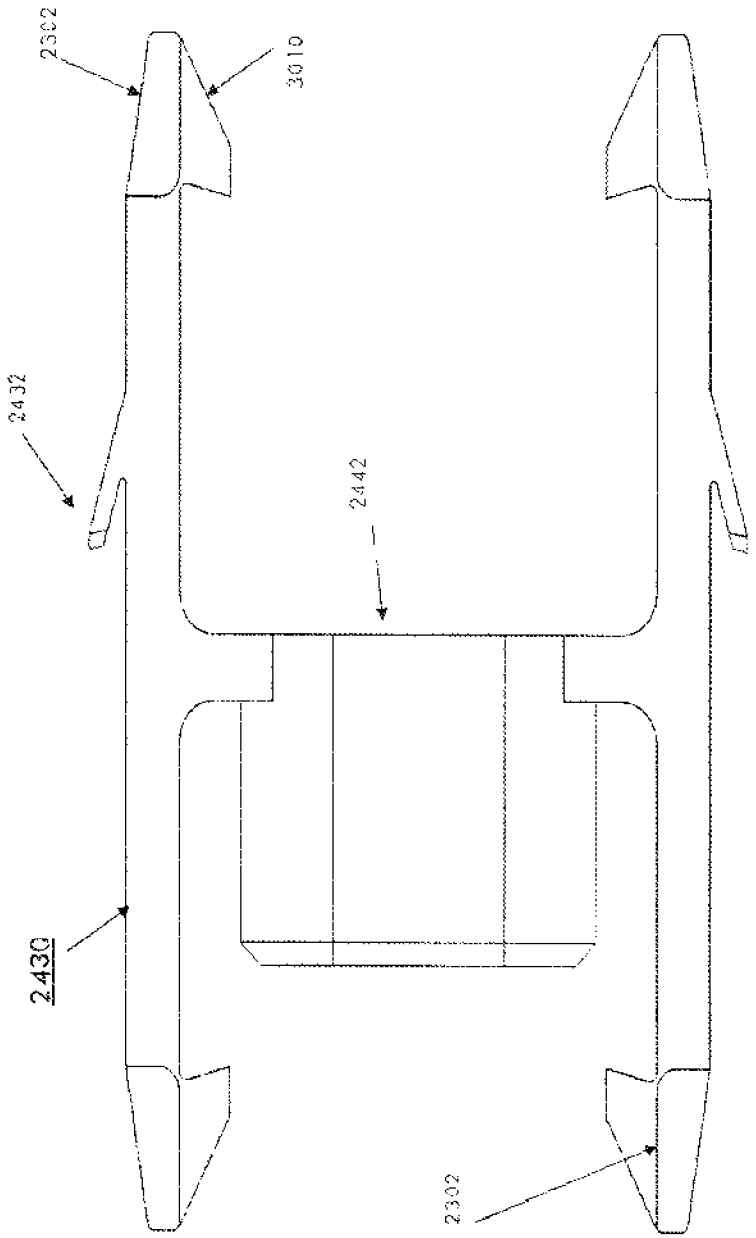


FIG. 30

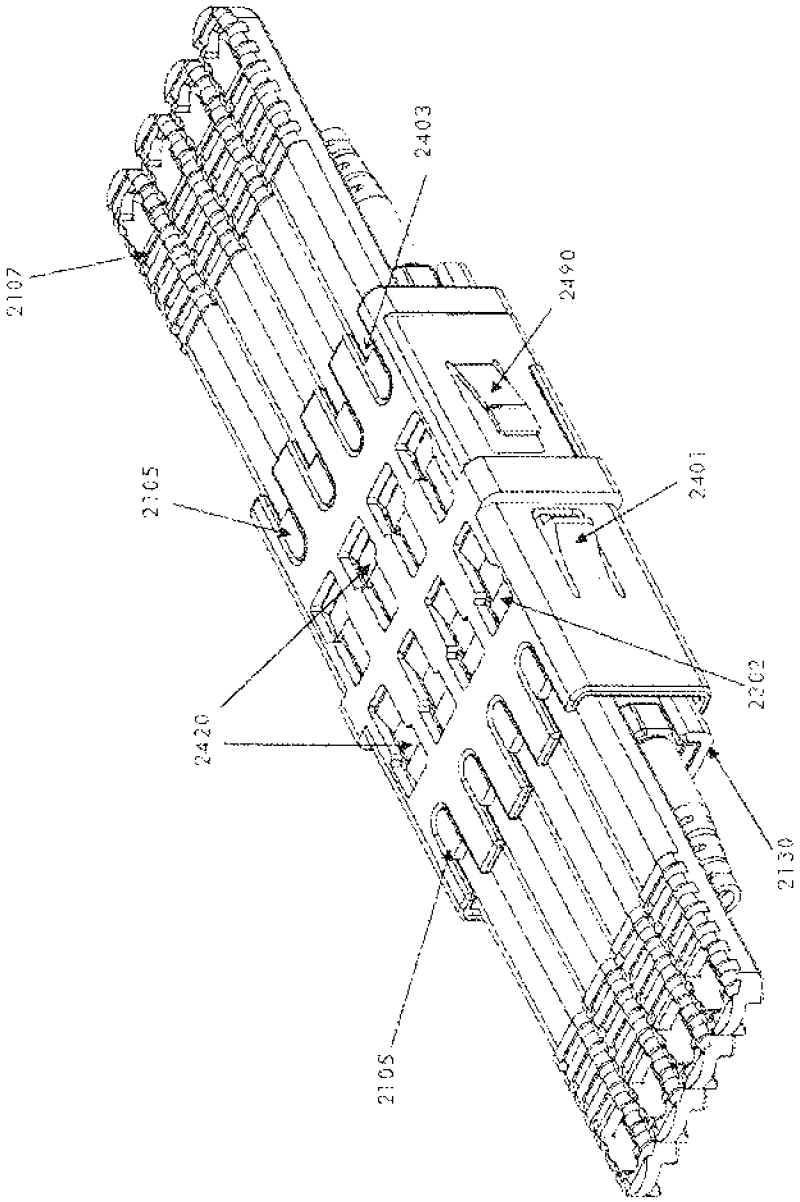


FIG. 31

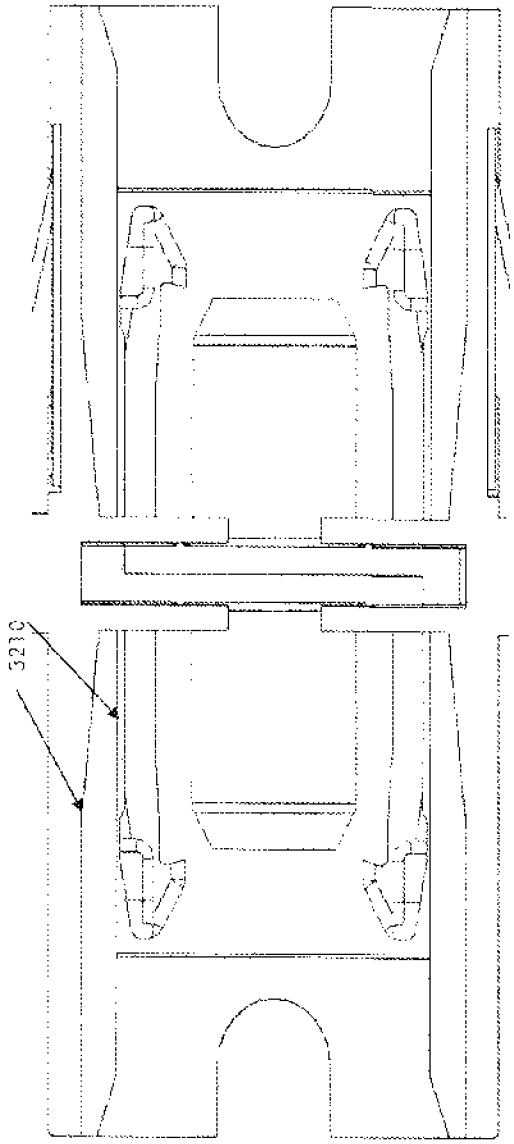


FIG. 32A

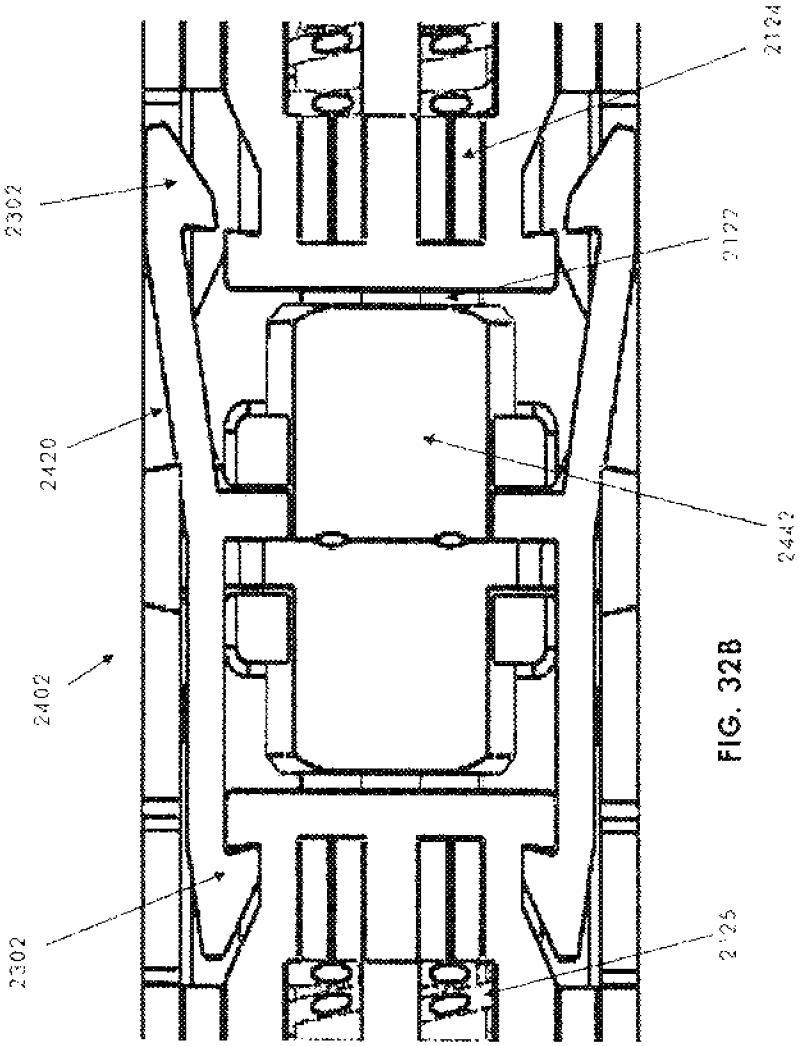


FIG. 32B

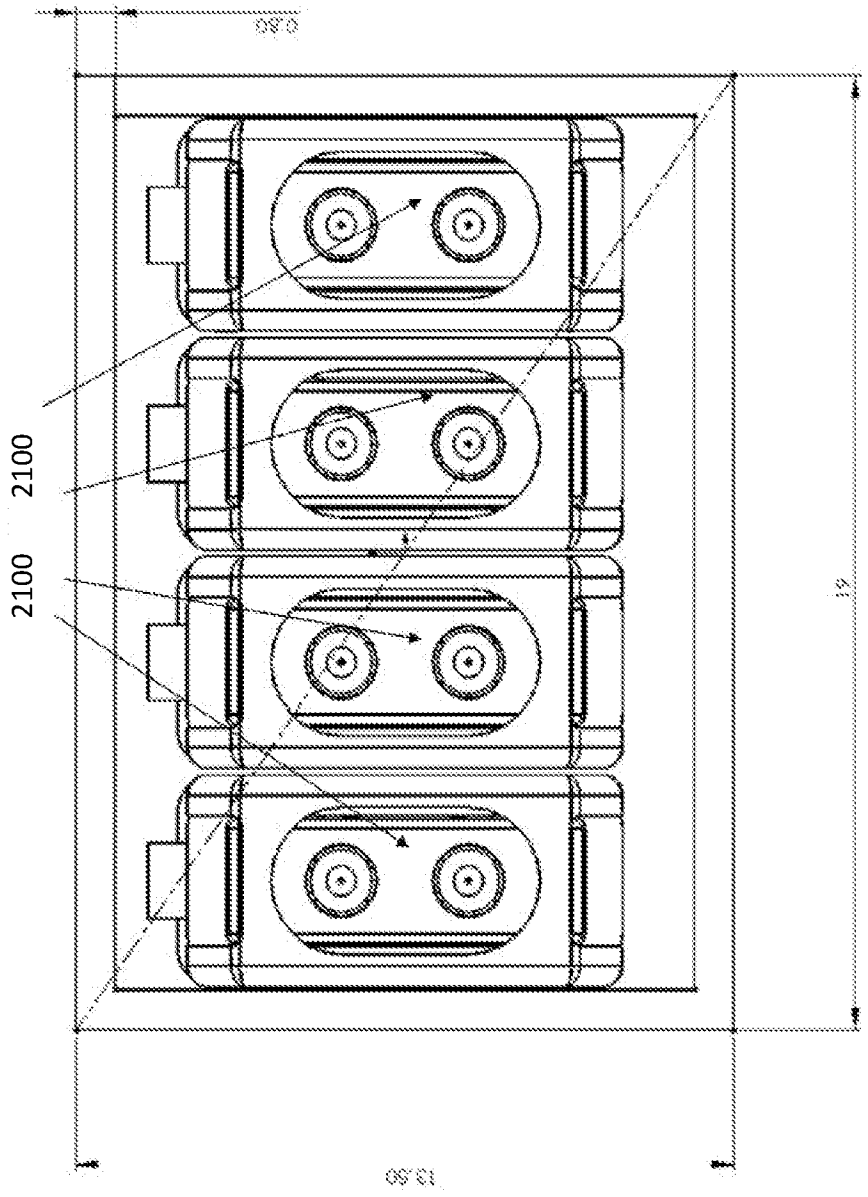


FIG. 33A

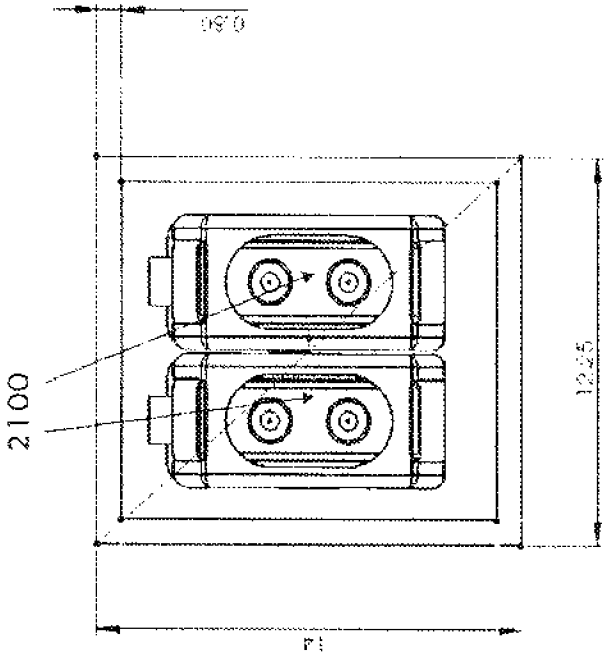


FIG. 33B

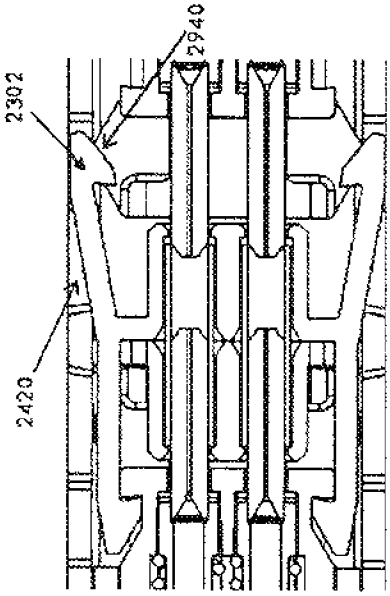


FIG. 34B

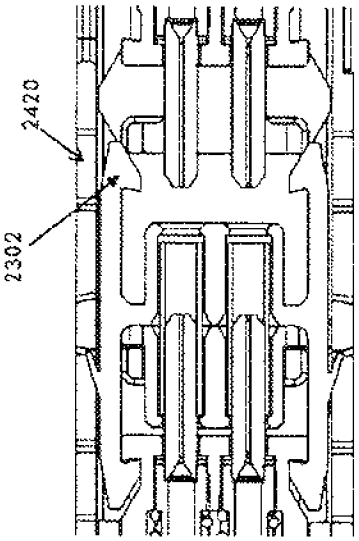


FIG. 34A

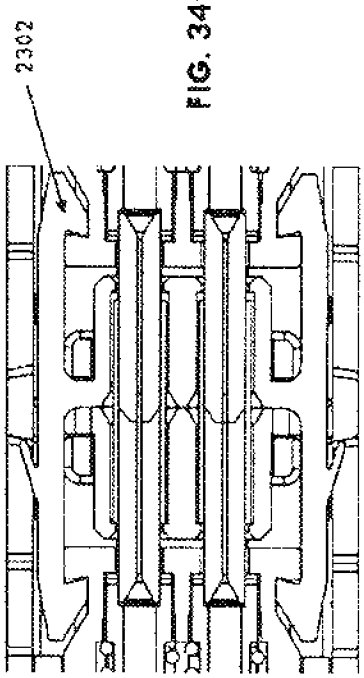


FIG. 34C

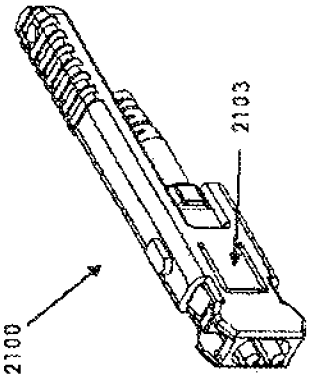


FIG. 35A

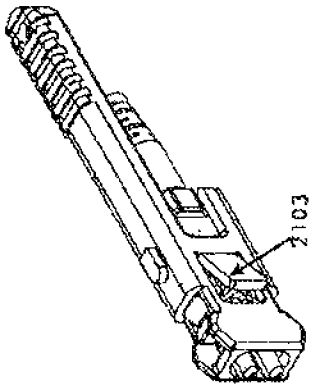


FIG. 35B

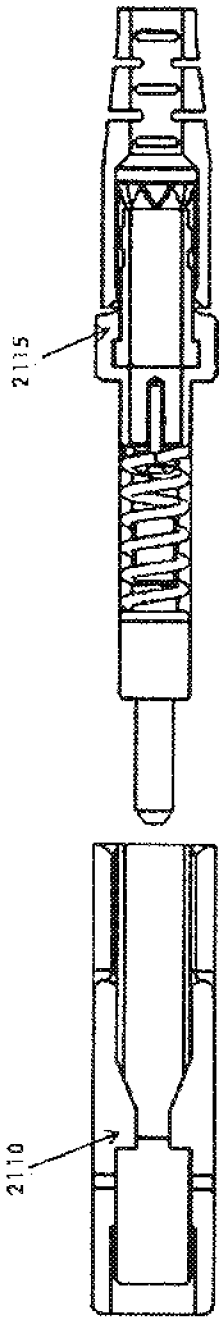


FIG. 35C

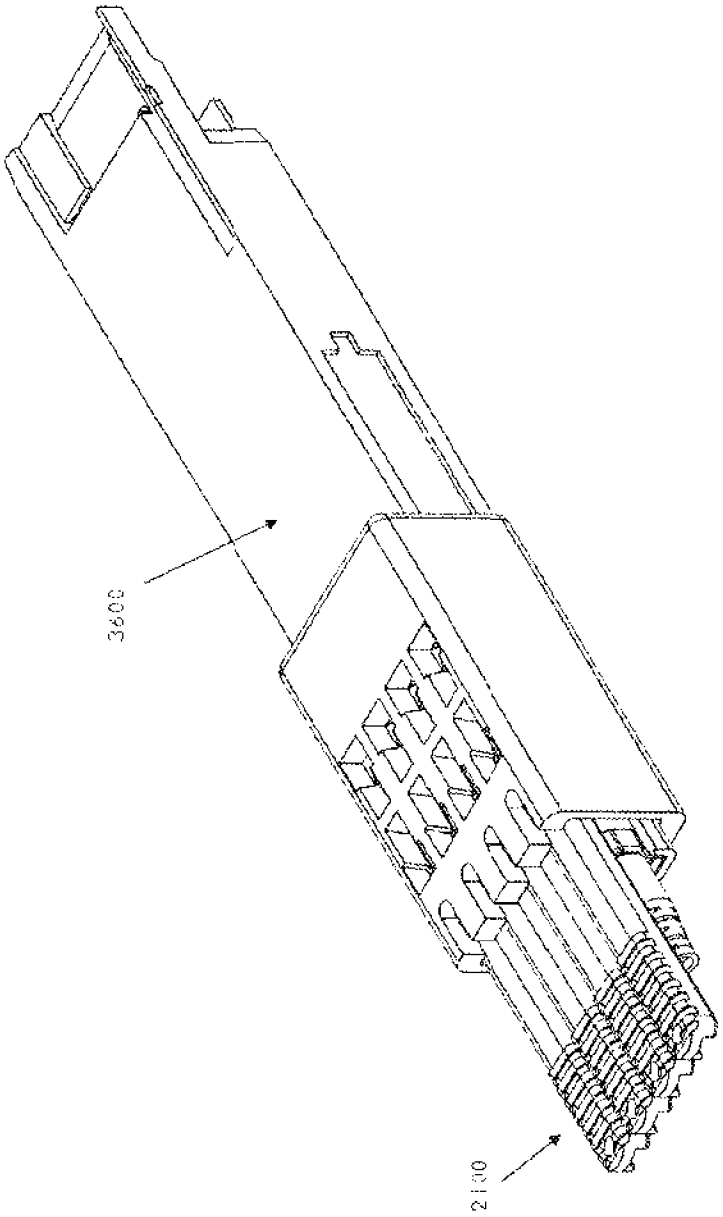


FIG. 36A

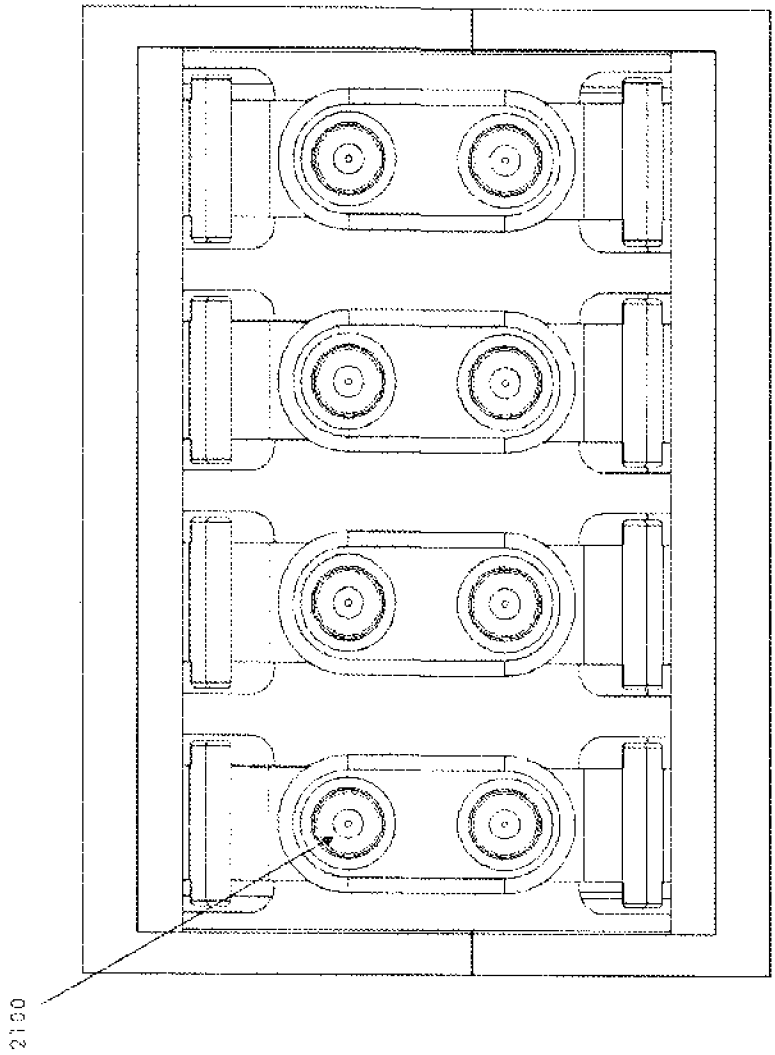


FIG. 36B

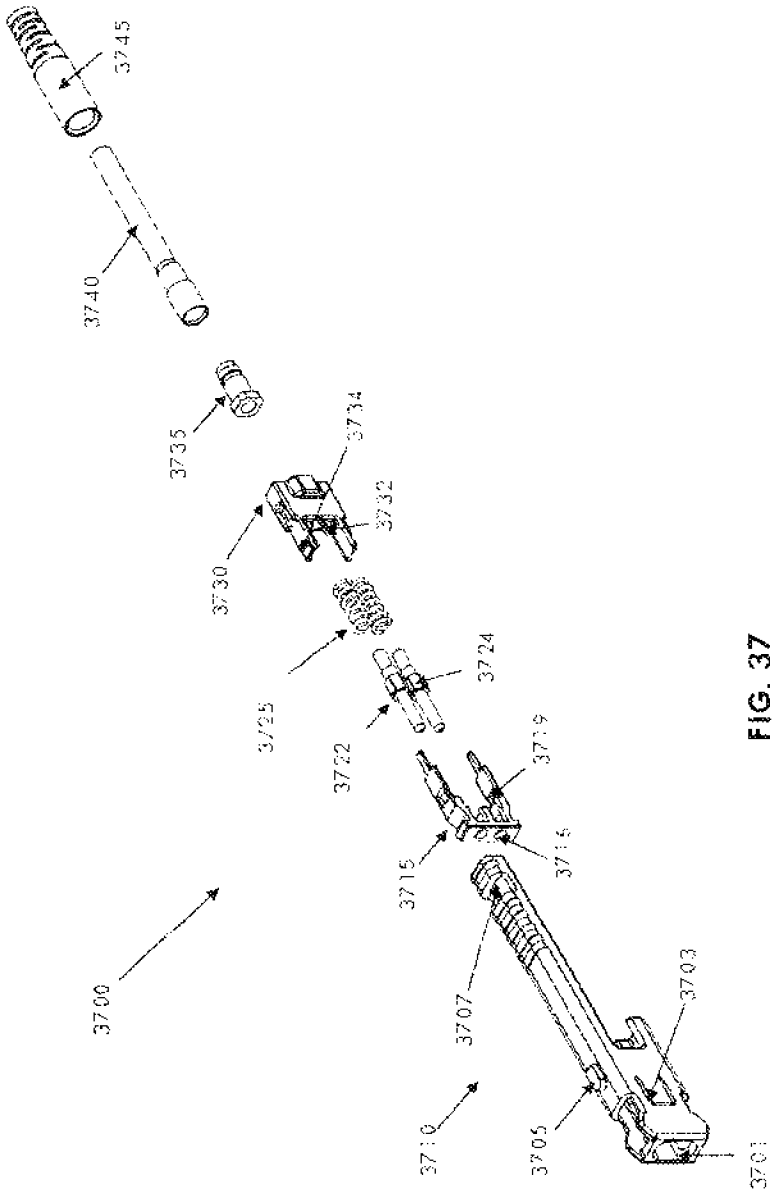

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FIG. 37

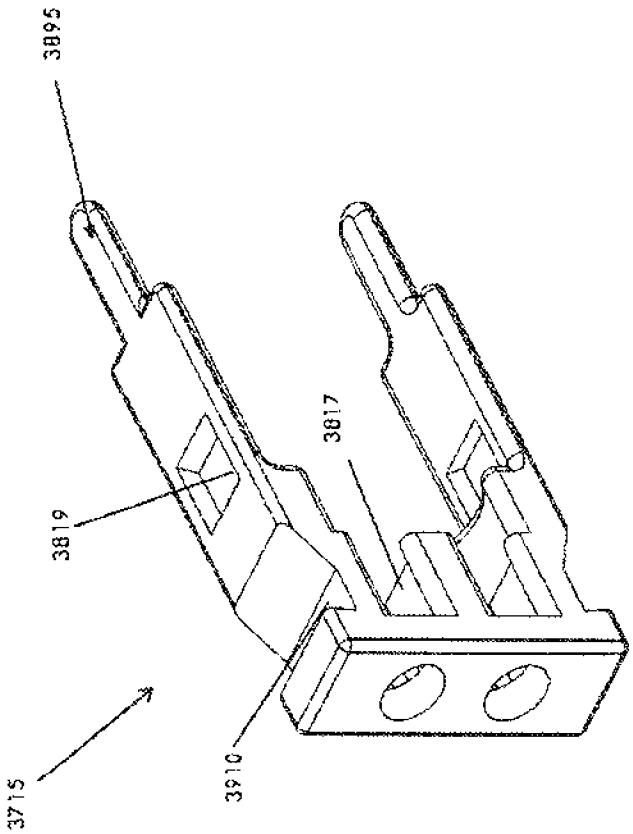


FIG. 38

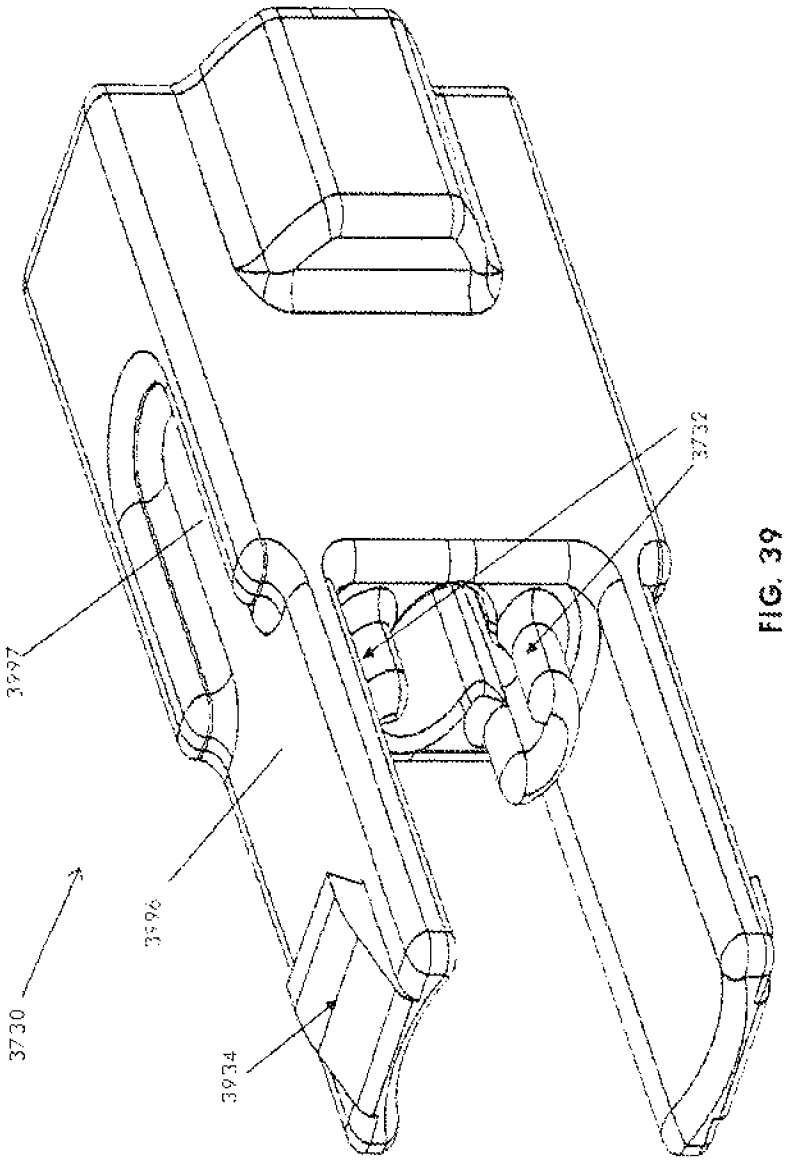


FIG. 39

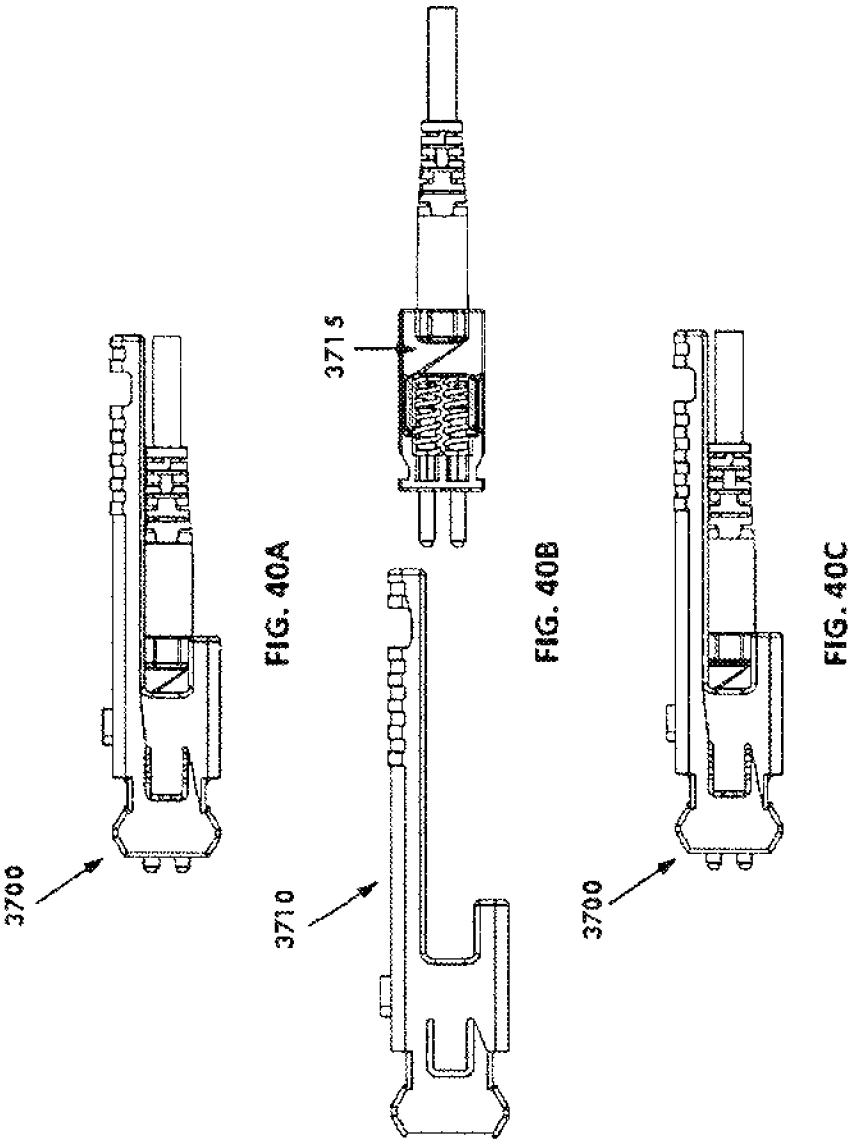


FIG. 40A

FIG. 40B

FIG. 40C

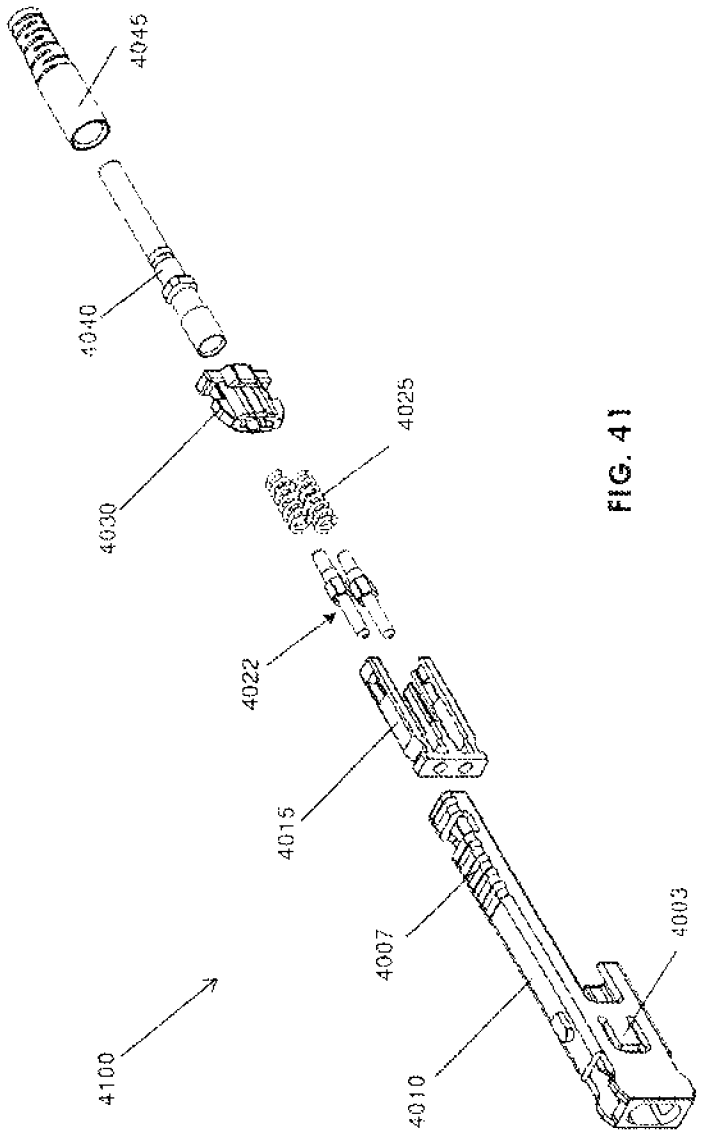


FIG. 41

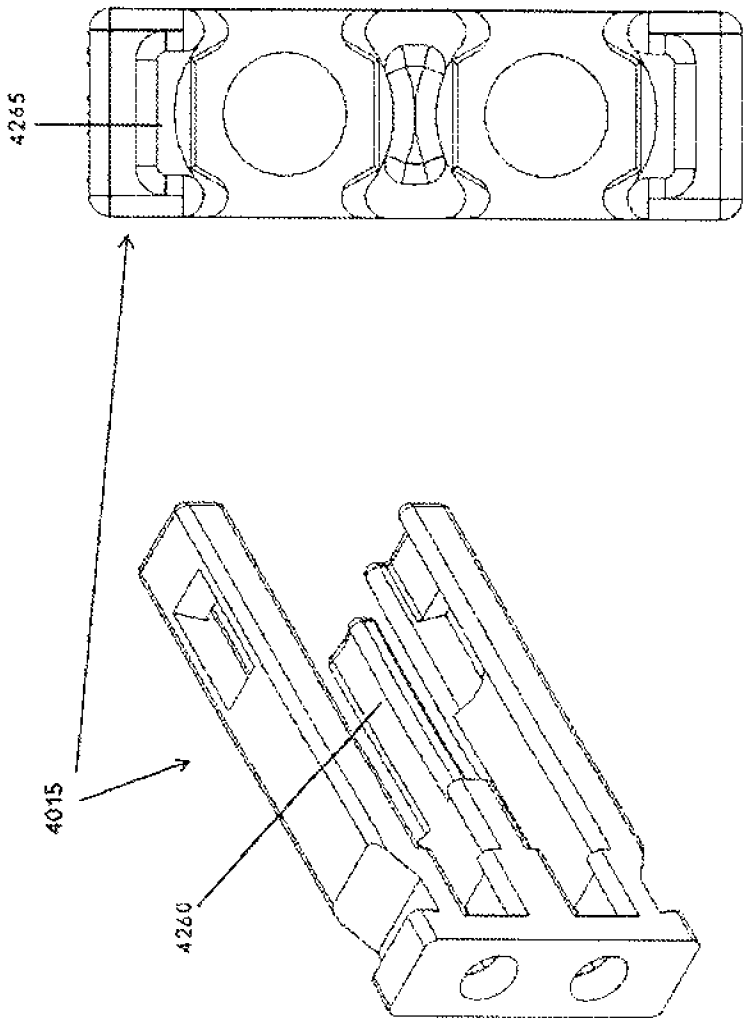


FIG. 42B

FIG. 42A

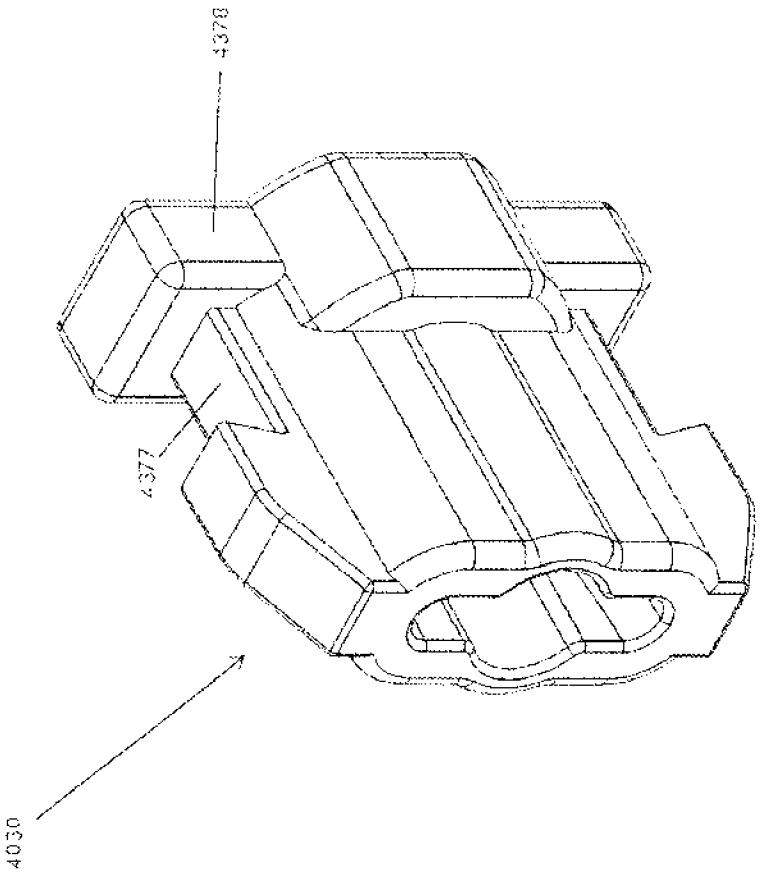


FIG. 43

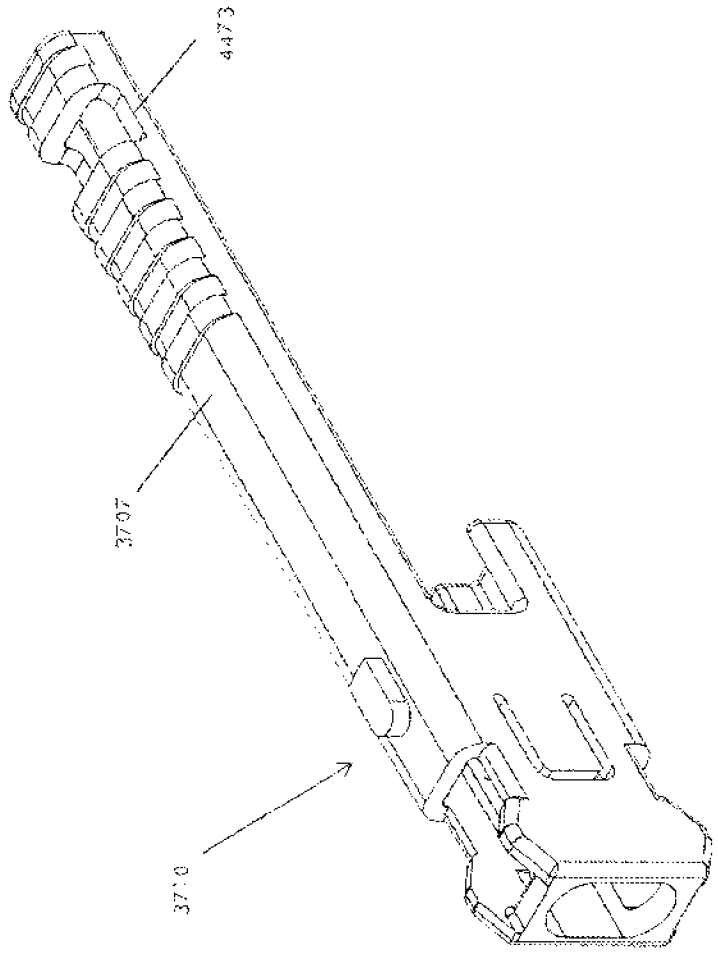


FIG. 44A

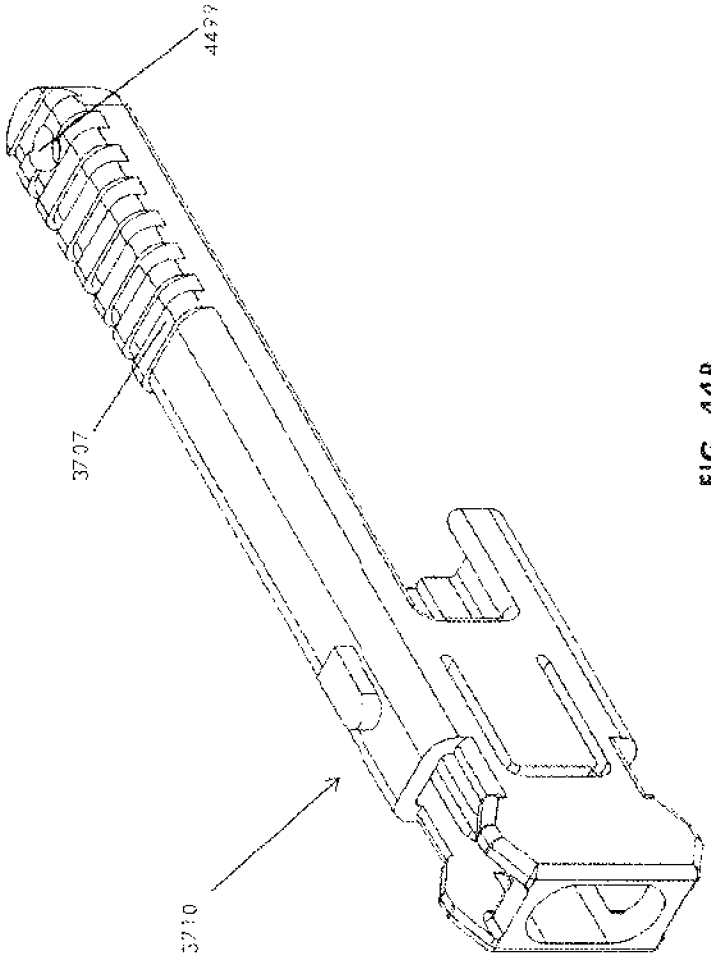


FIG. 44B

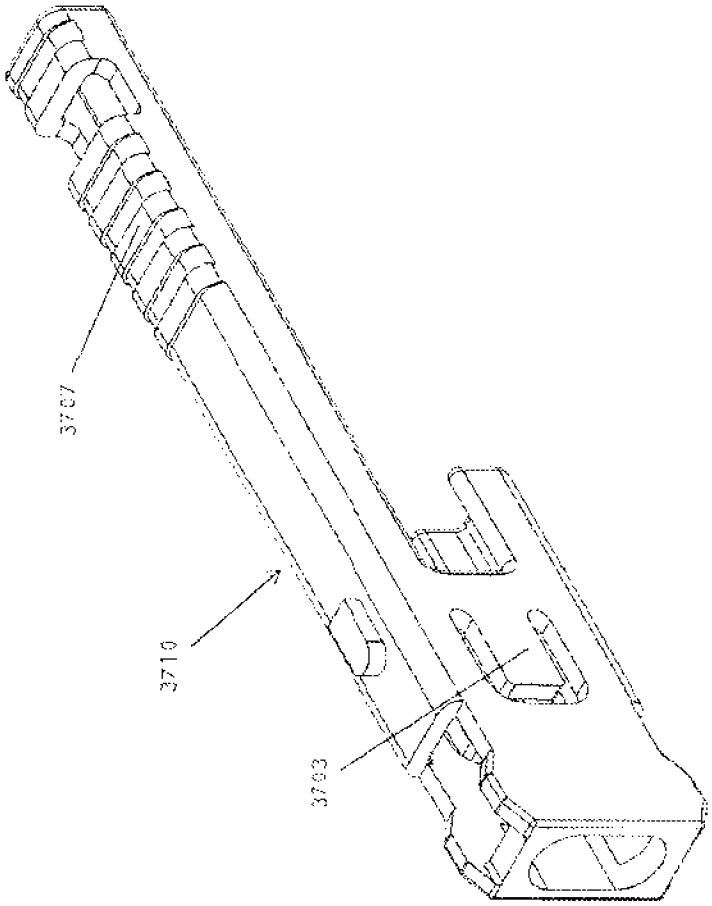


FIG. 44C

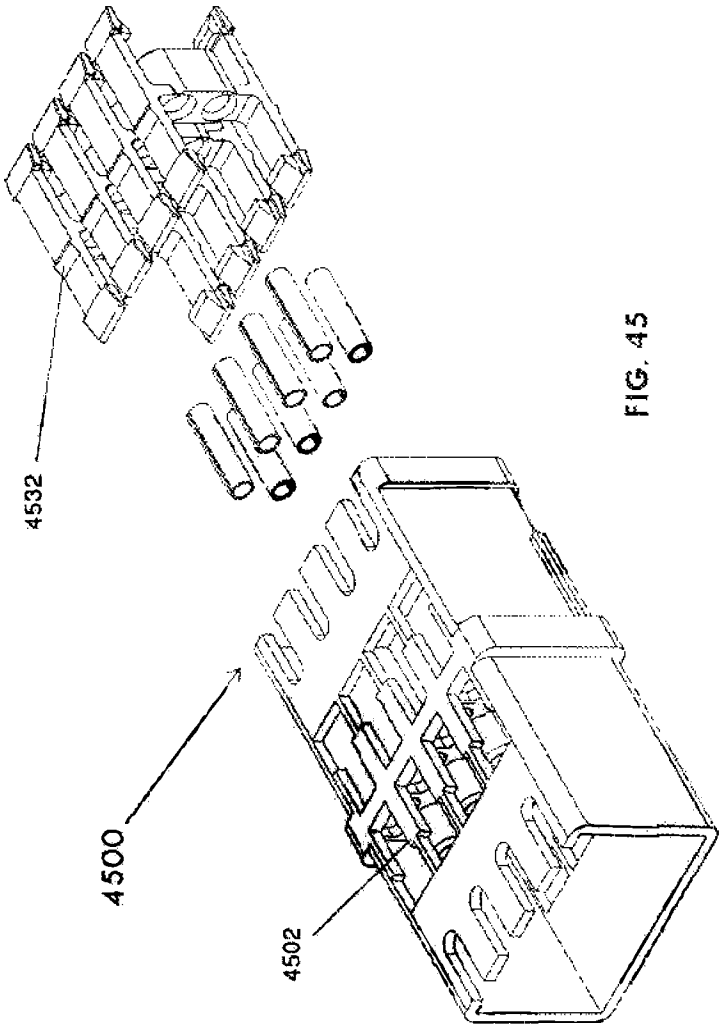


FIG. 45

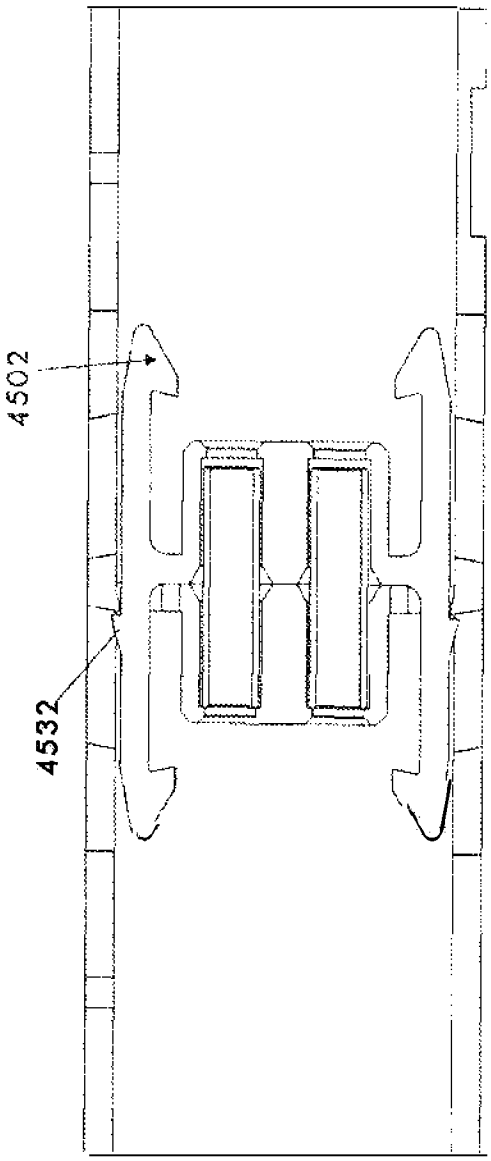


FIG. 46

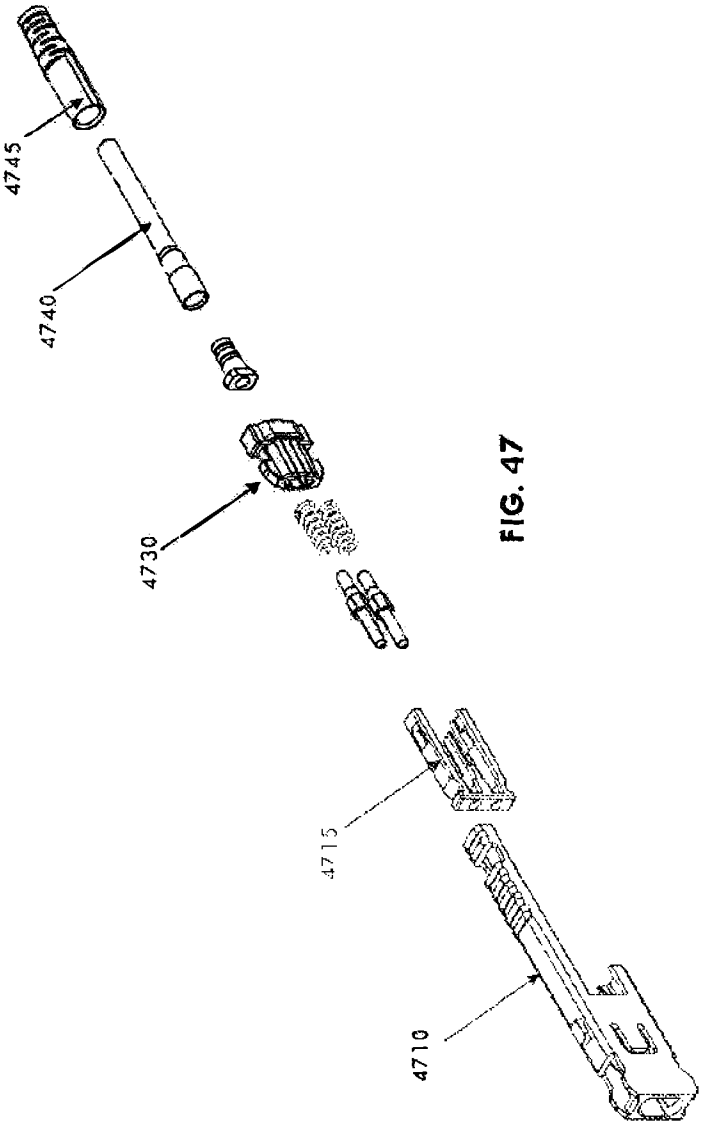


FIG. 47

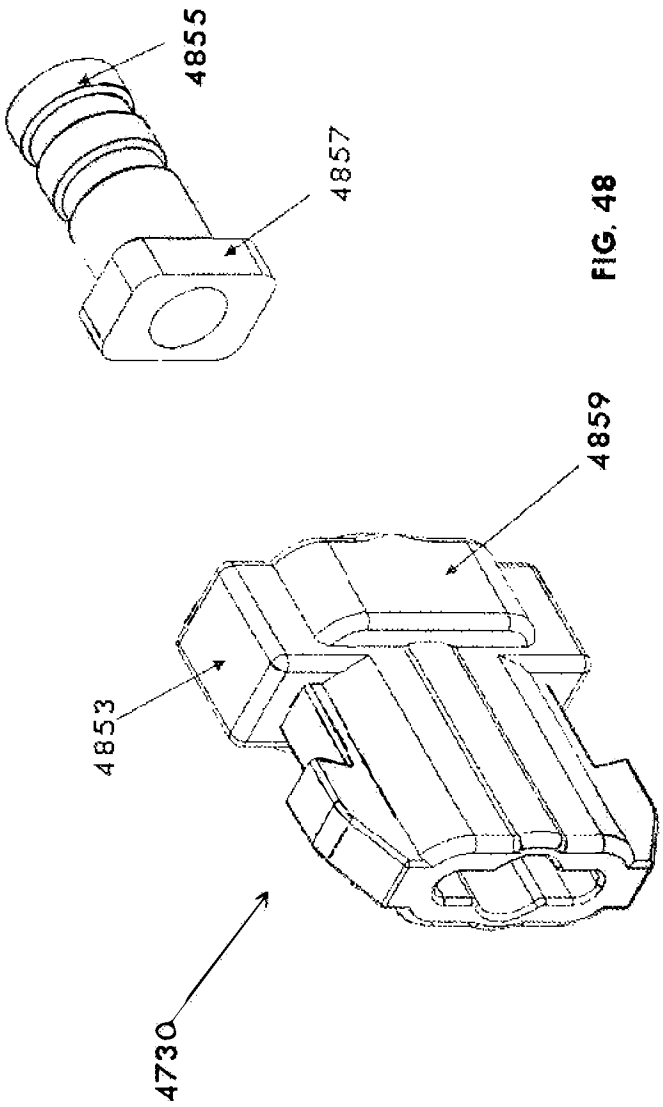


FIG. 48

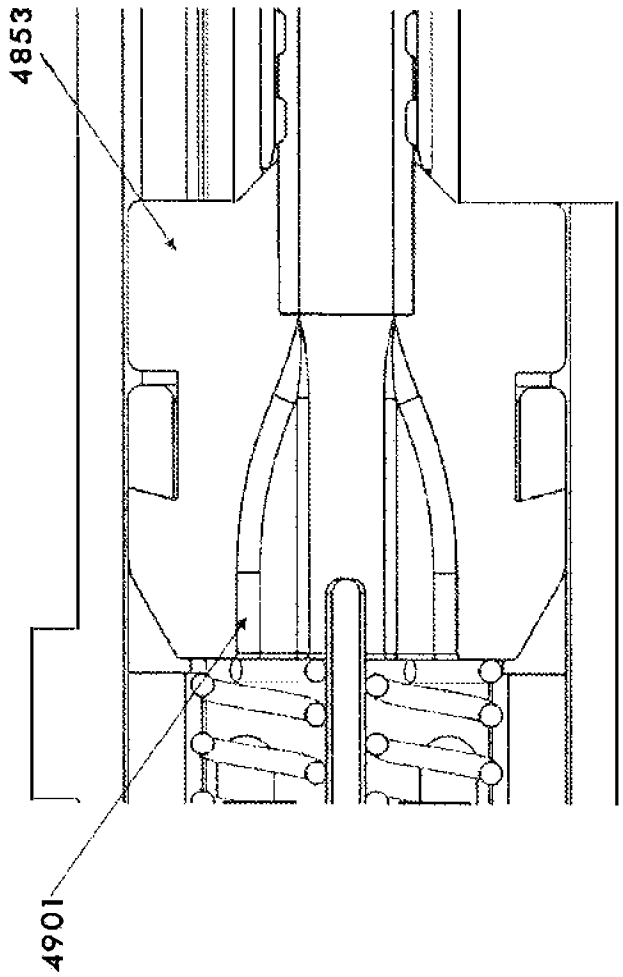


FIG. 49

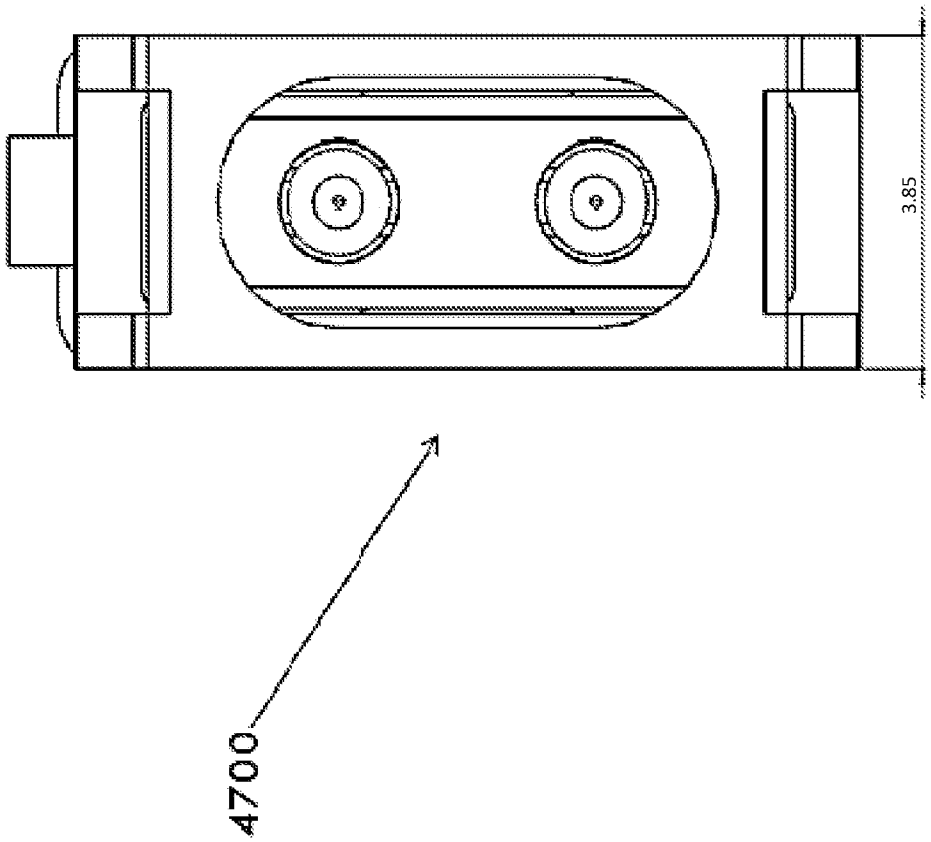


FIG. 50

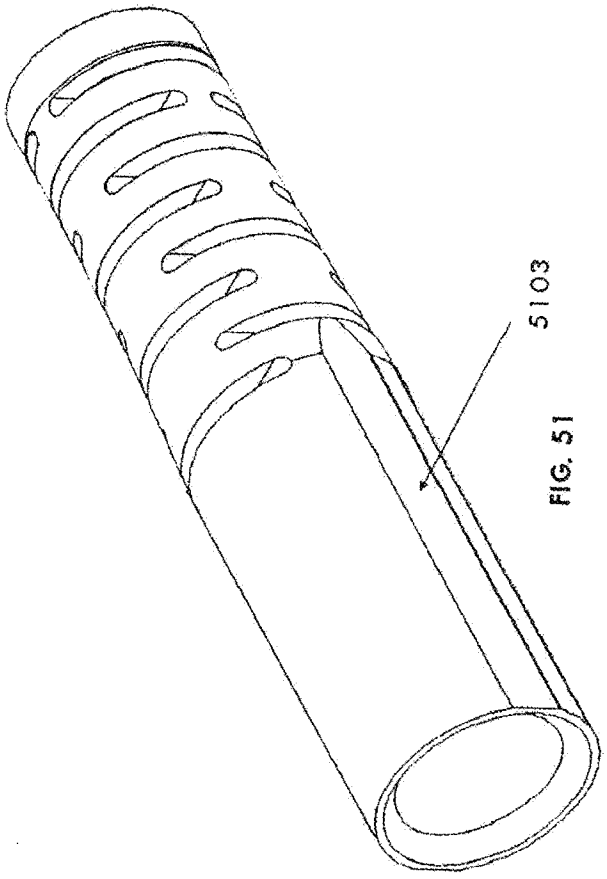


FIG. 51

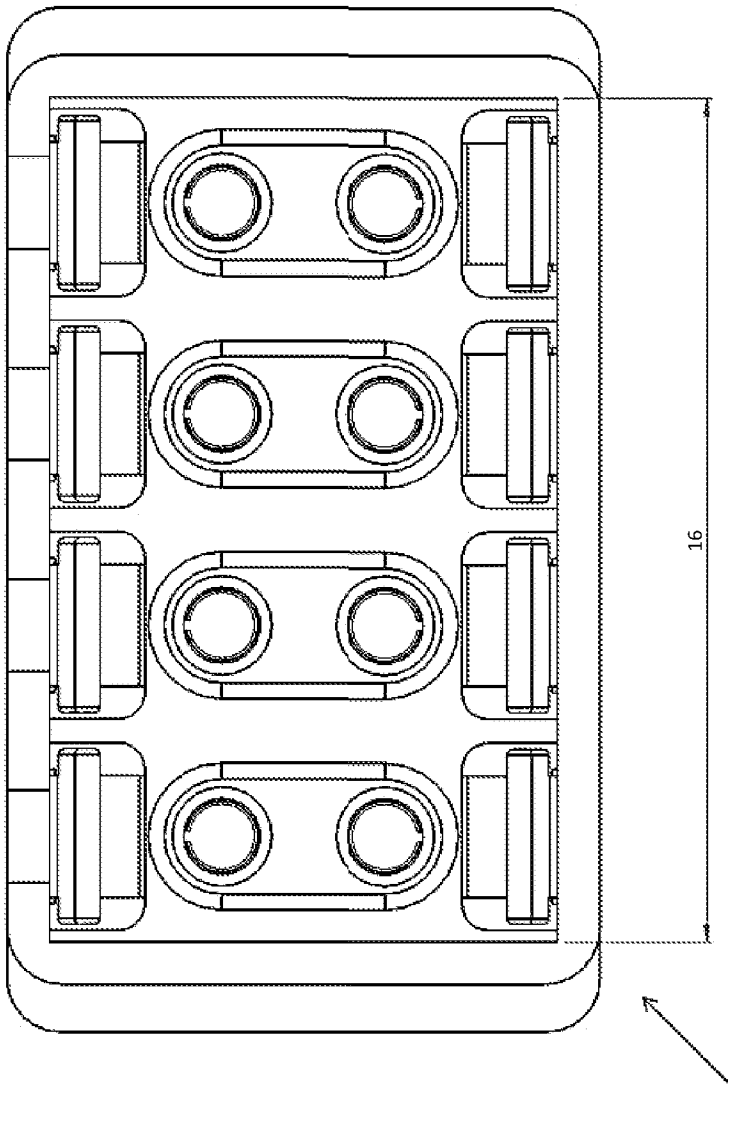


FIG. 52

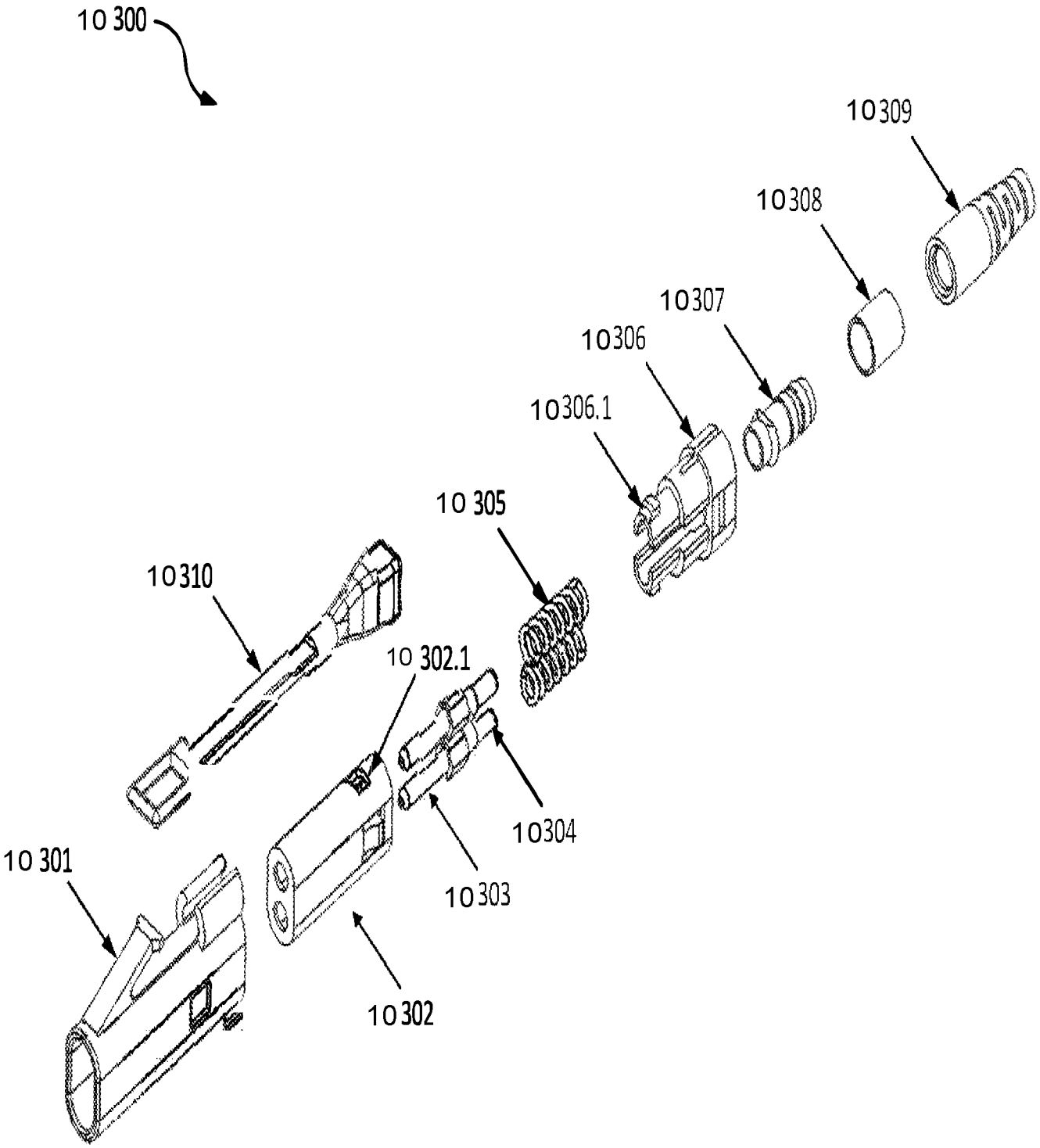

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FIG. 53

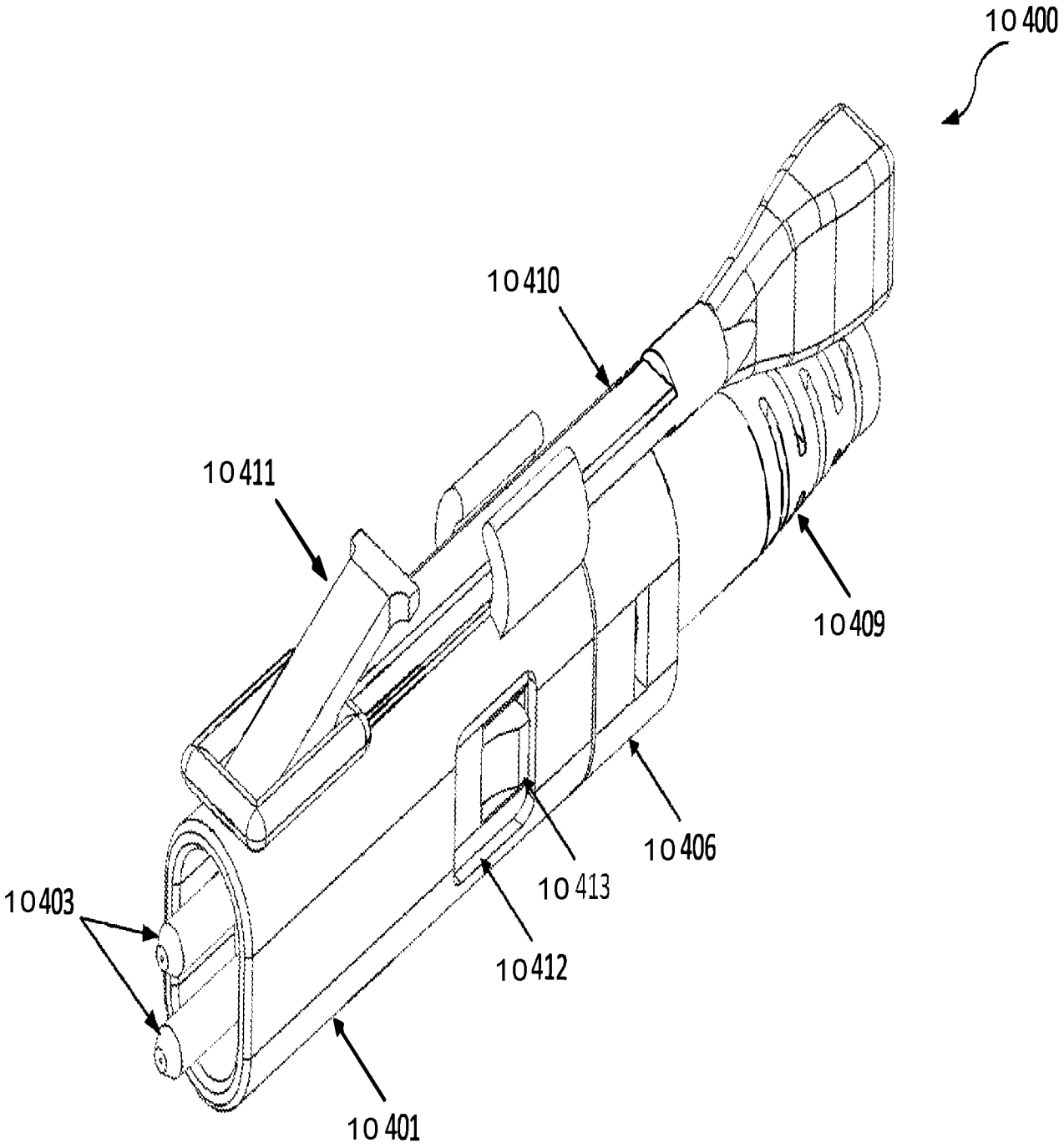


FIG. 54

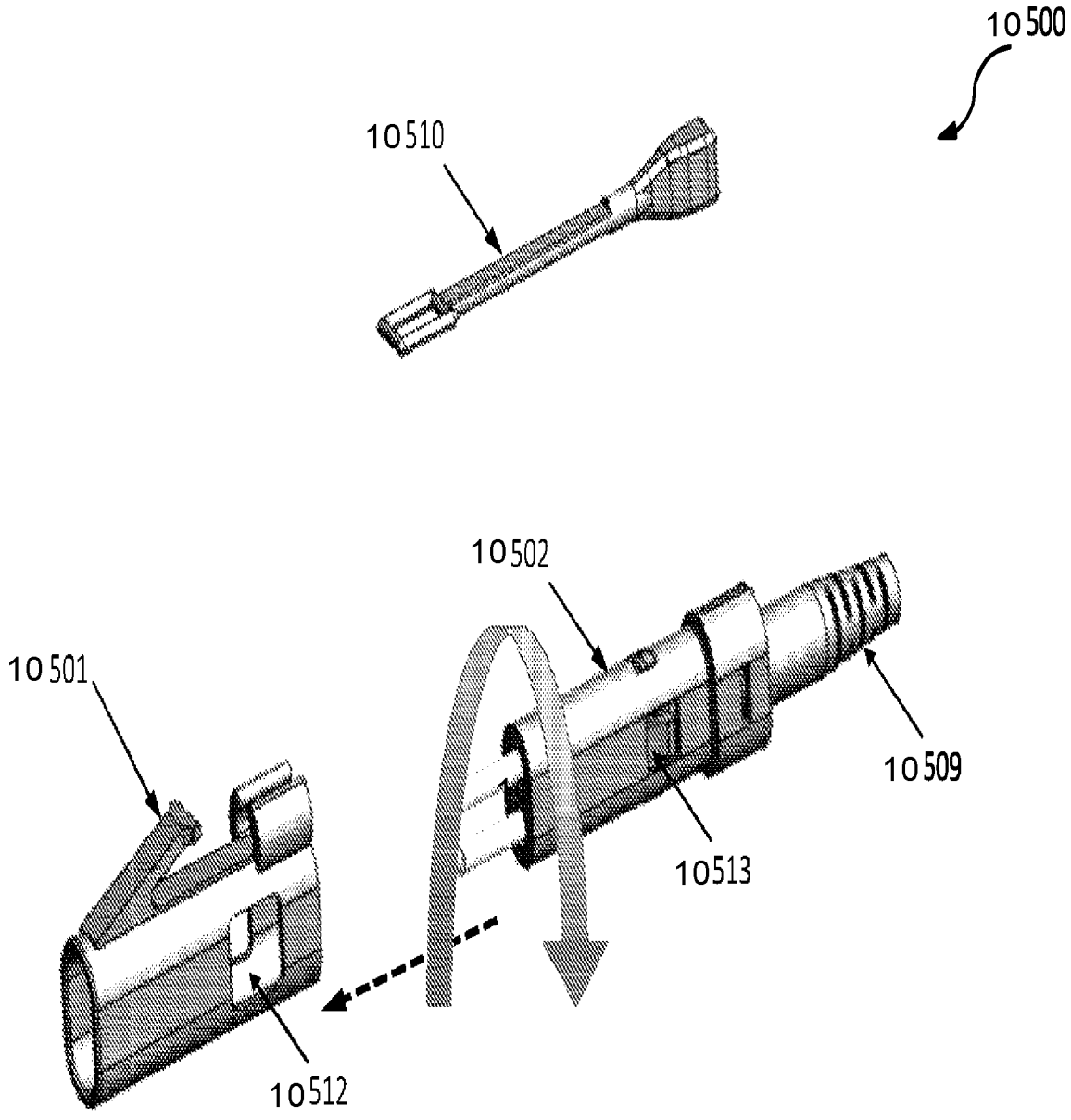


FIG. 55

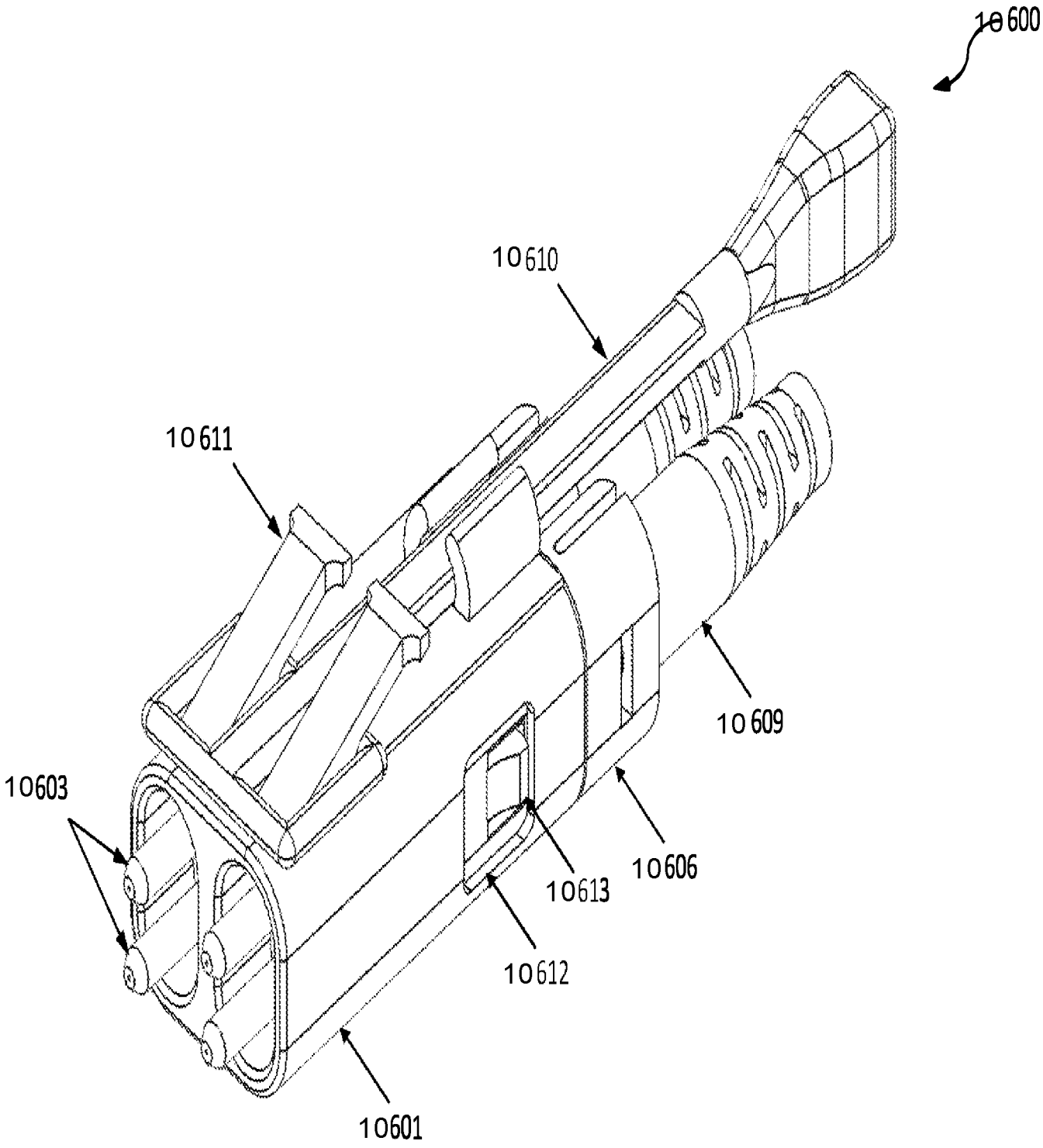


FIG. 56

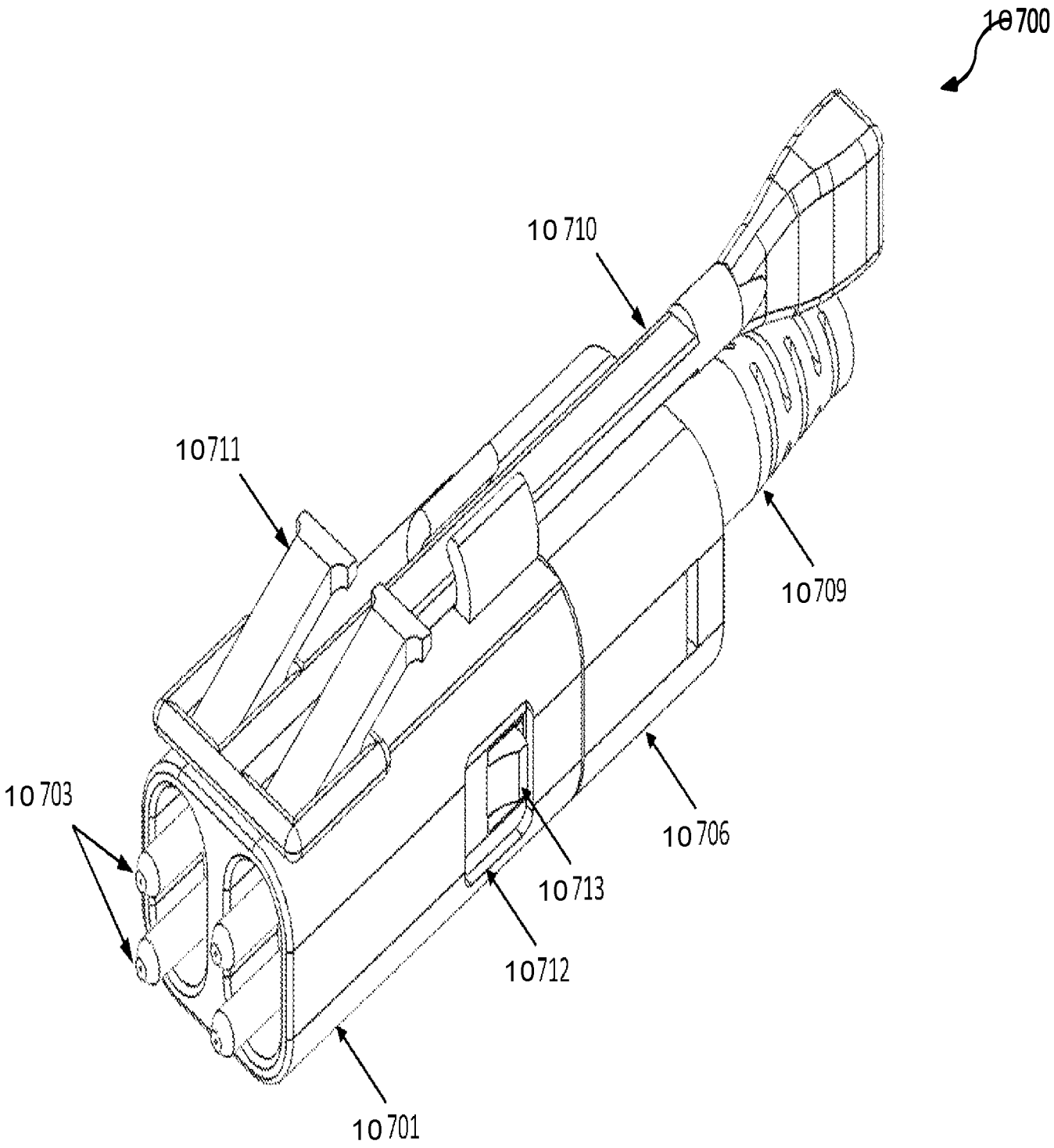


FIG. 57

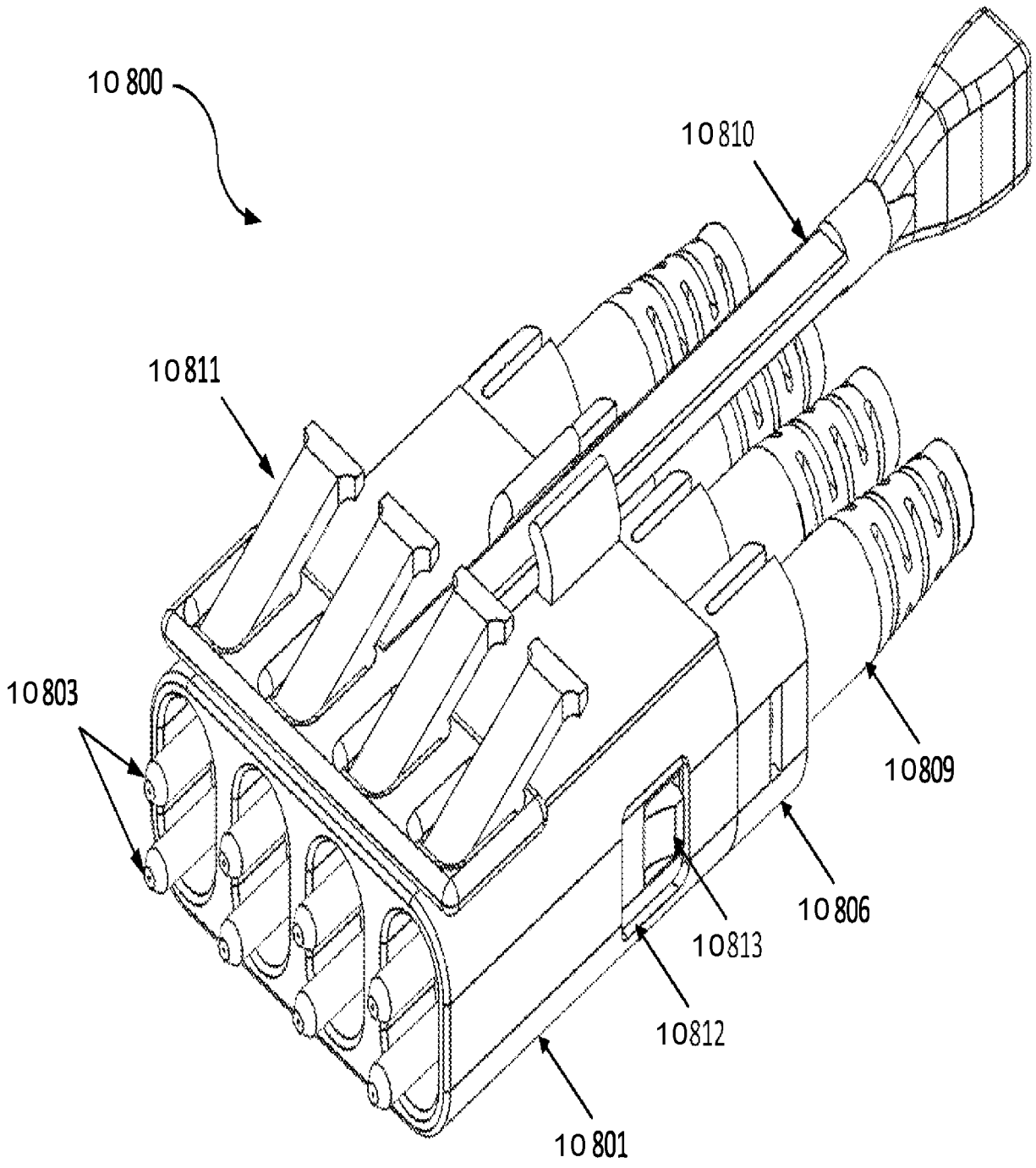


FIG. 58

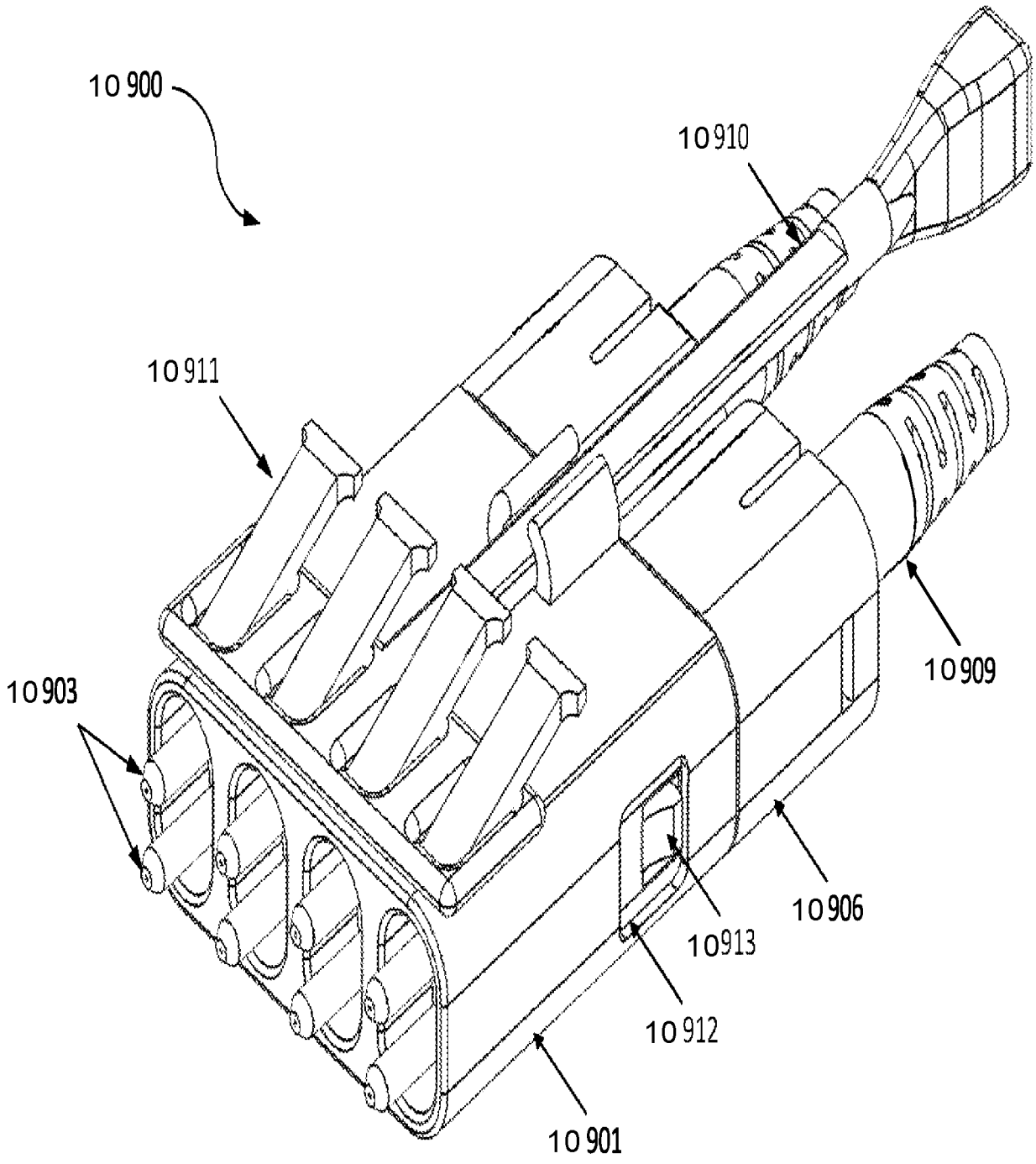


FIG. 59

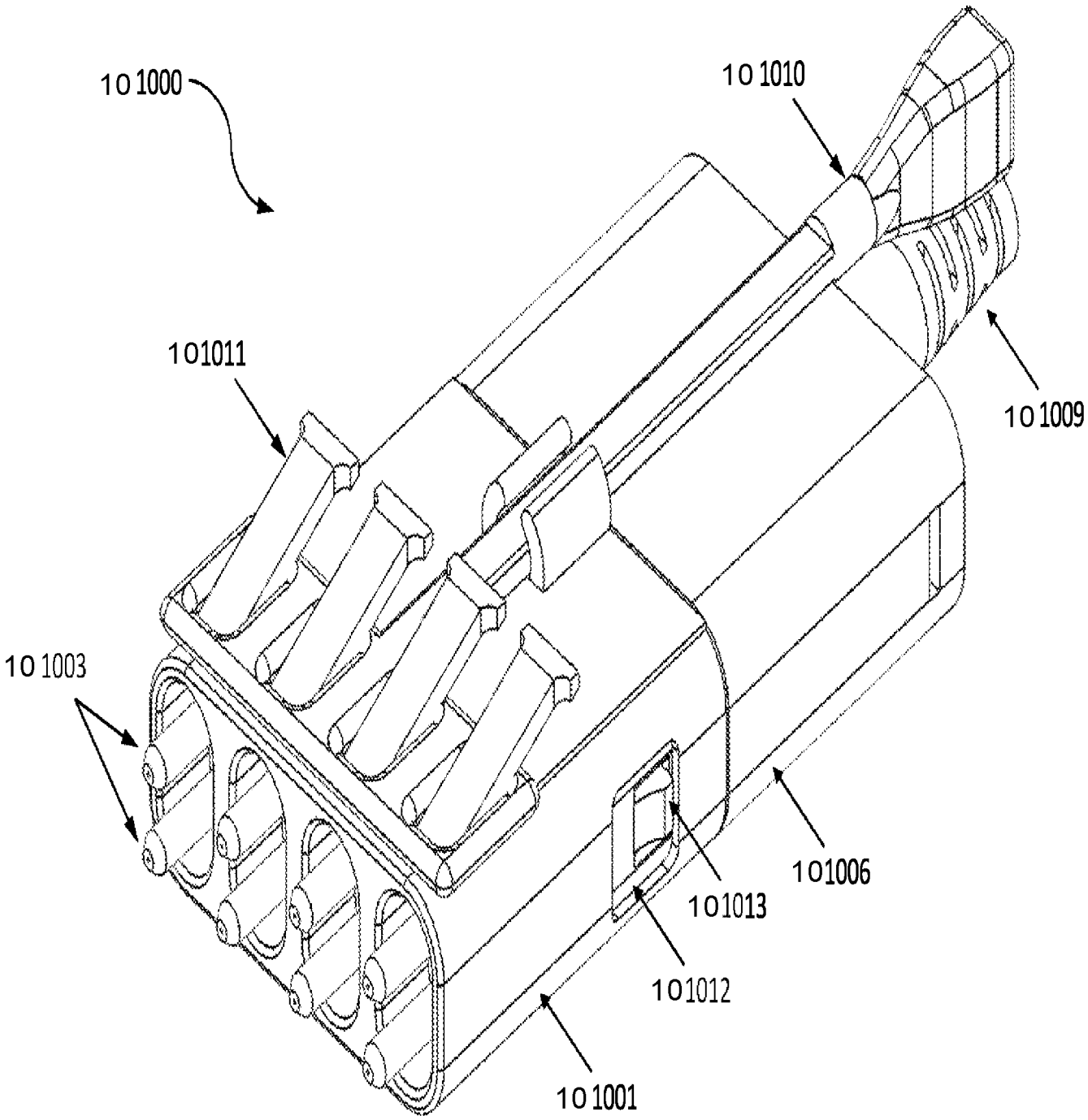

10 1000
10 1010
101011
10 1009
10 1003
101006
101013
101012
10 1001

FIG. 60

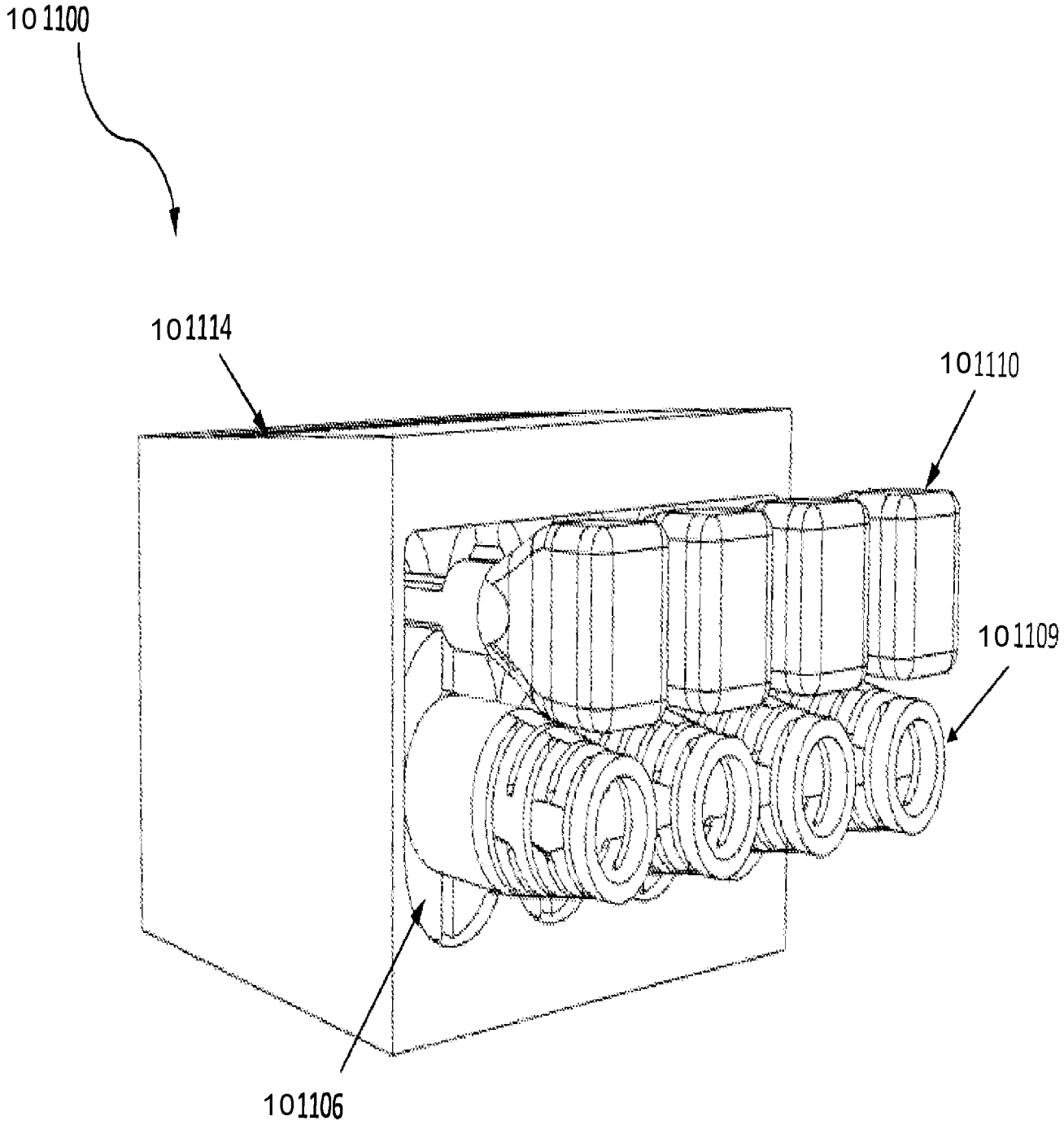


FIG. 61

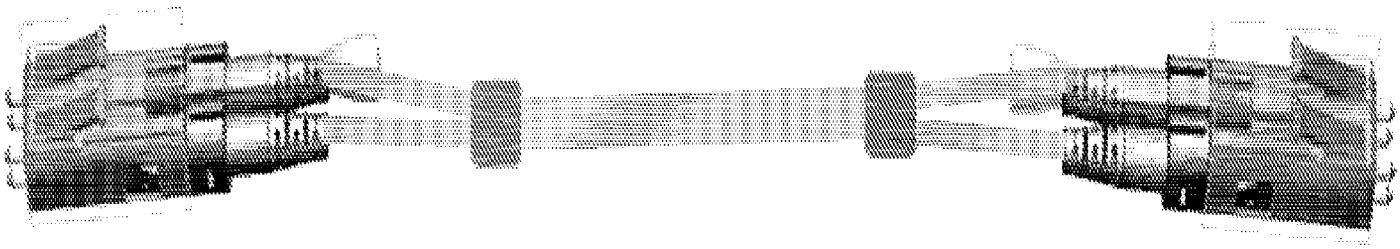


FIG. 62A

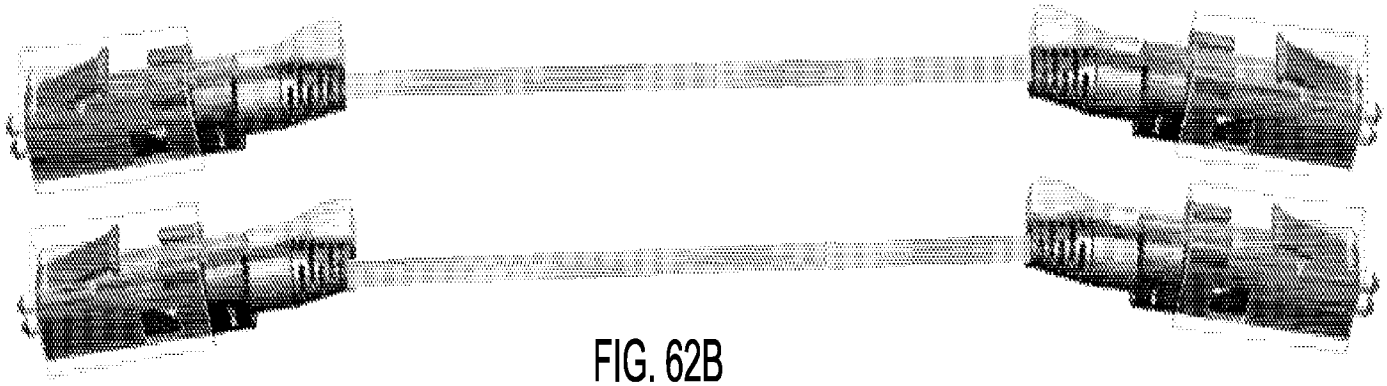


FIG. 62B

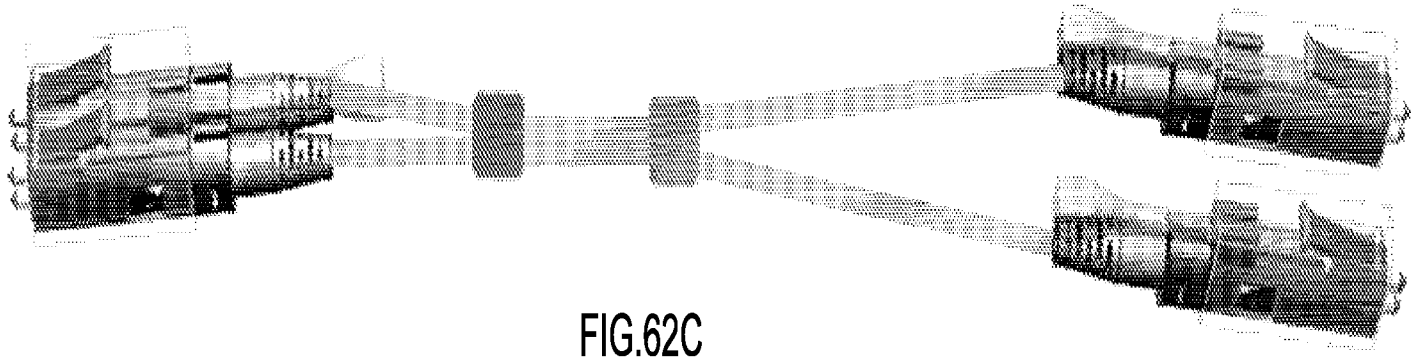


FIG.62C

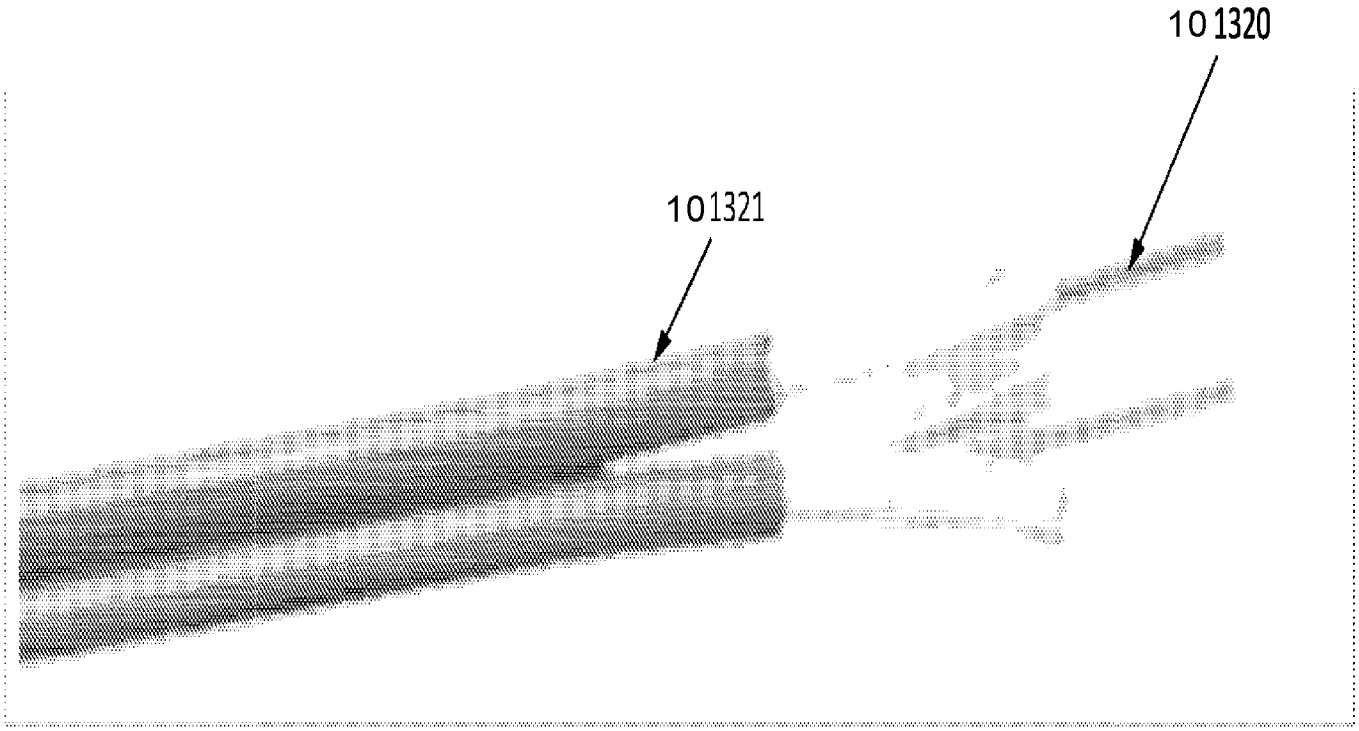


FIG. 63A

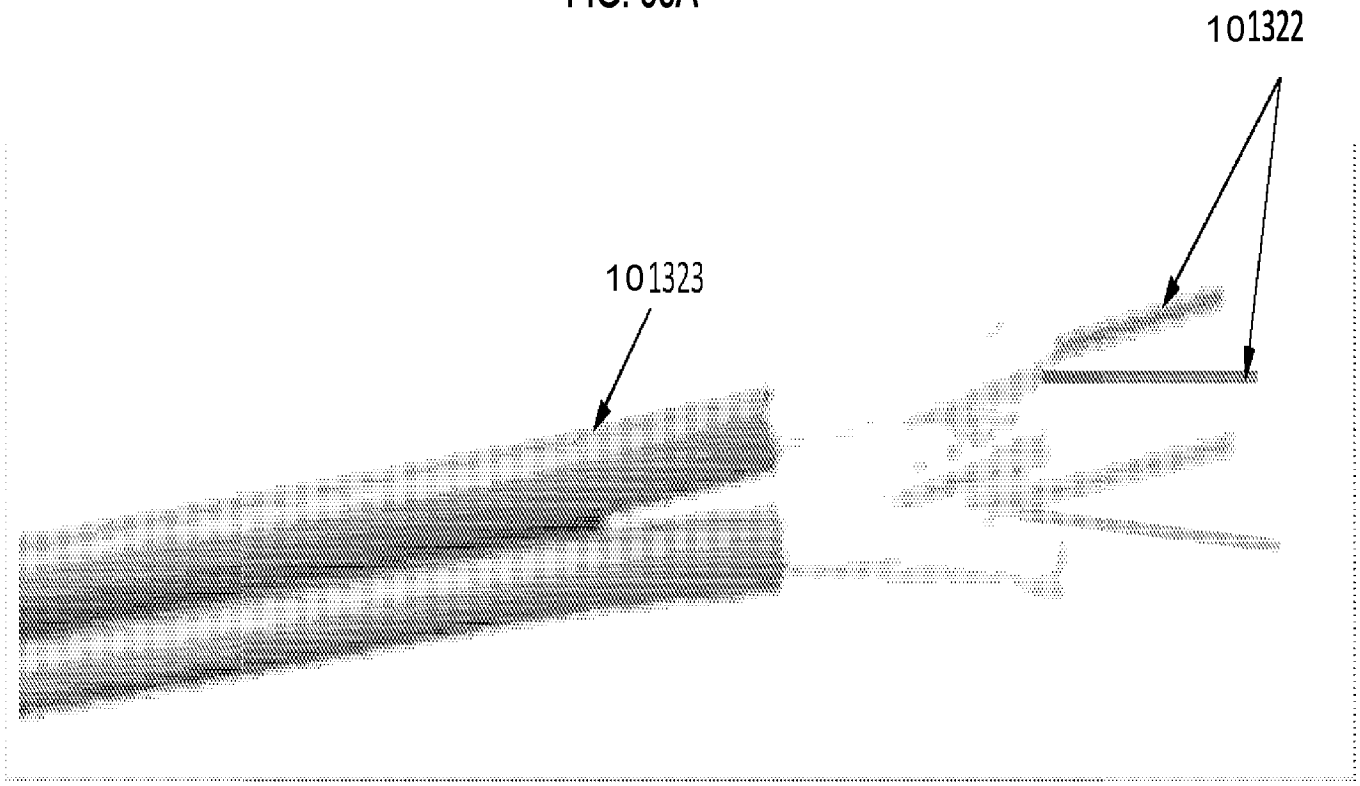


FIG. 63B

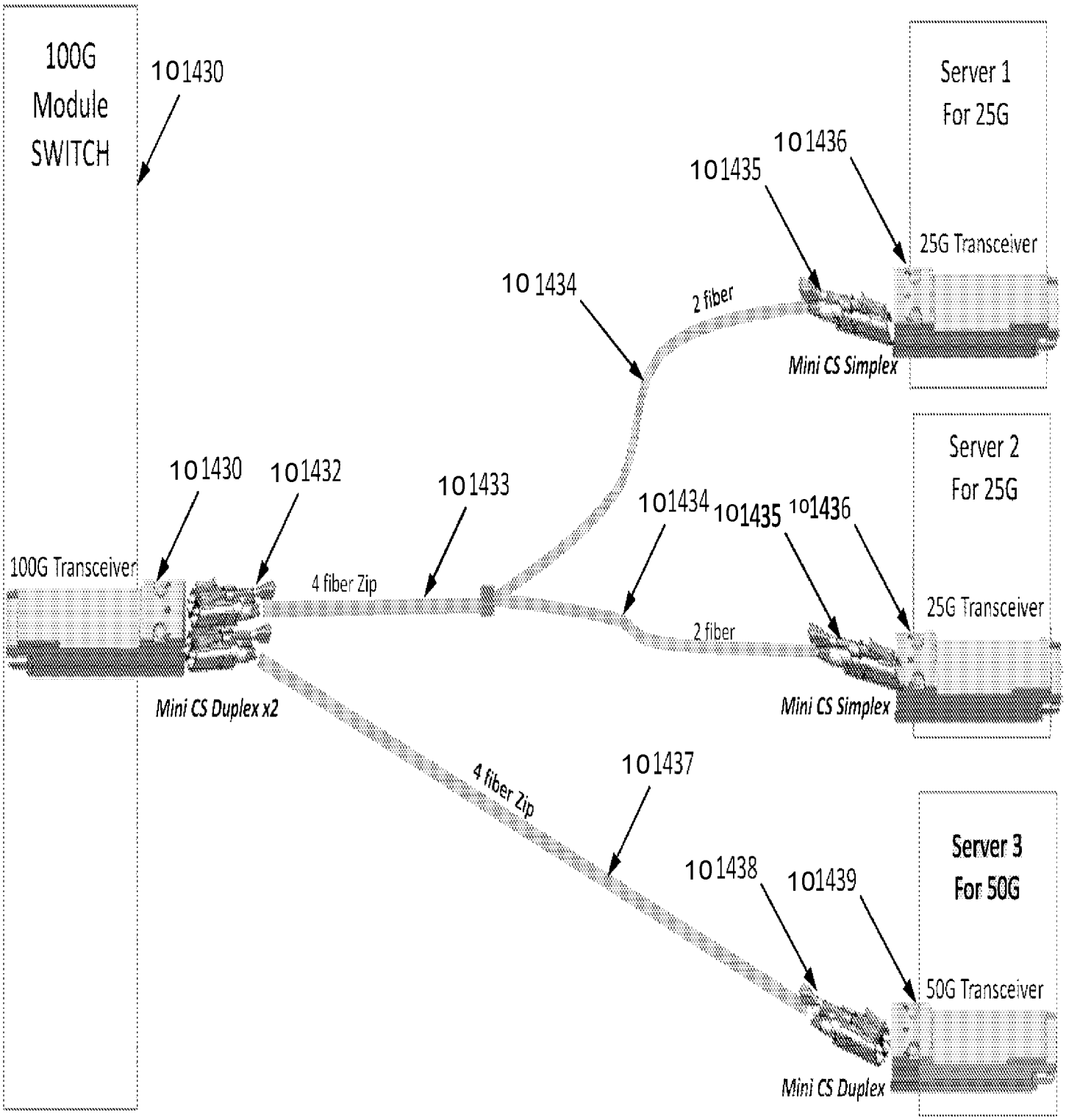

100G
Module
SWITCH
101430
Server 1
For 25G
101436
101435
25G Transceiver
101434
2 fiber
Mini CS Simplex
Server 2
For 25G
101430
101432
101433
101434
101435
101436
100G Transceiver
4 fiber Zip
25G Transceiver
2 fiber
Mini CS Duplex x2
Mini CS Simplex
101437
4 fiber Zip
Server 3
For 50G
101438
101439
50G Transceiver
Mini CS Duplex

FIG. 64

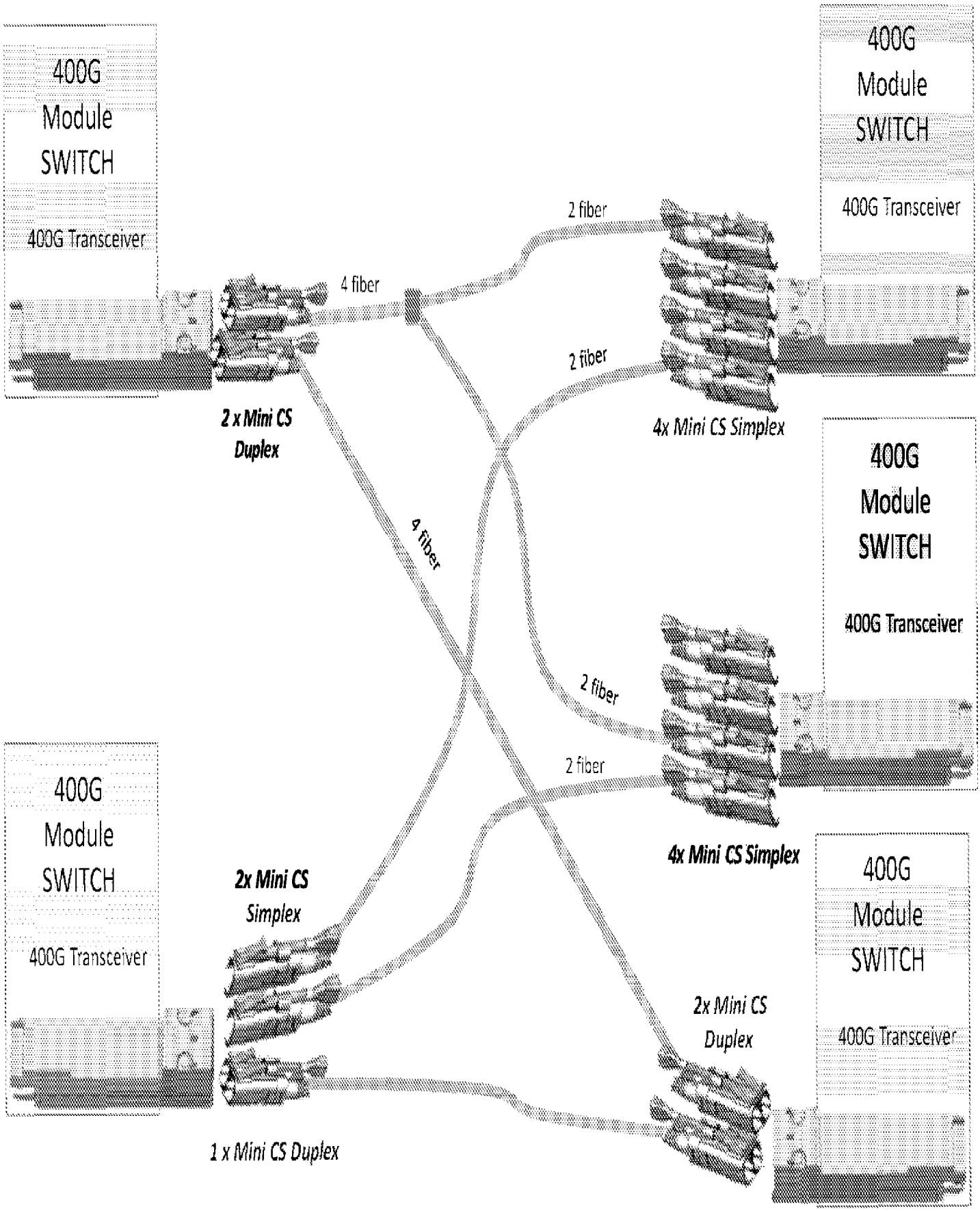

400G Module SWITCH
400G Transceiver
400G Module SWITCH
400G Transceiver
2 fiber
4 fiber
2 fiber
2 x Mini CS Duplex
4x Mini CS Simplex
4 fiber
400G Module SWITCH
400G Transceiver
2 fiber
2 fiber
400G Module SWITCH
400G Transceiver
4x Mini CS Simplex
2x Mini CS Simplex
2x Mini CS Duplex
400G Module SWITCH
400G Transceiver
1 x Mini CS Duplex

FIG. 65

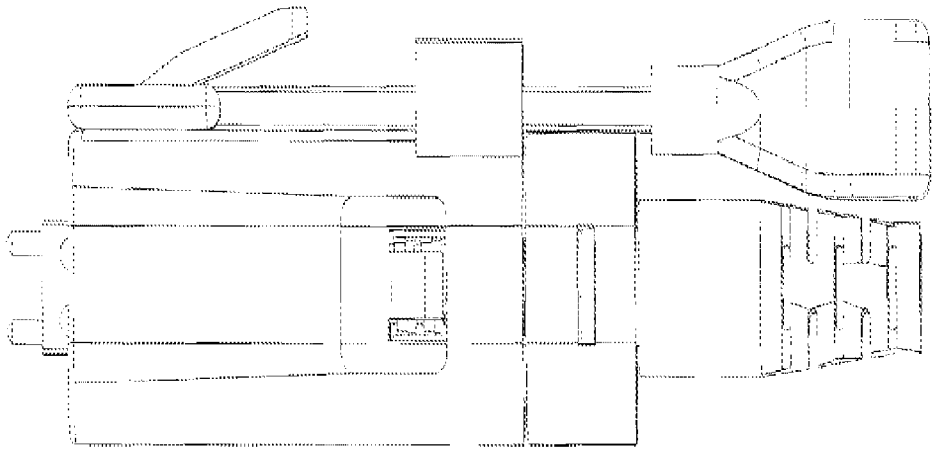


FIG. 66A

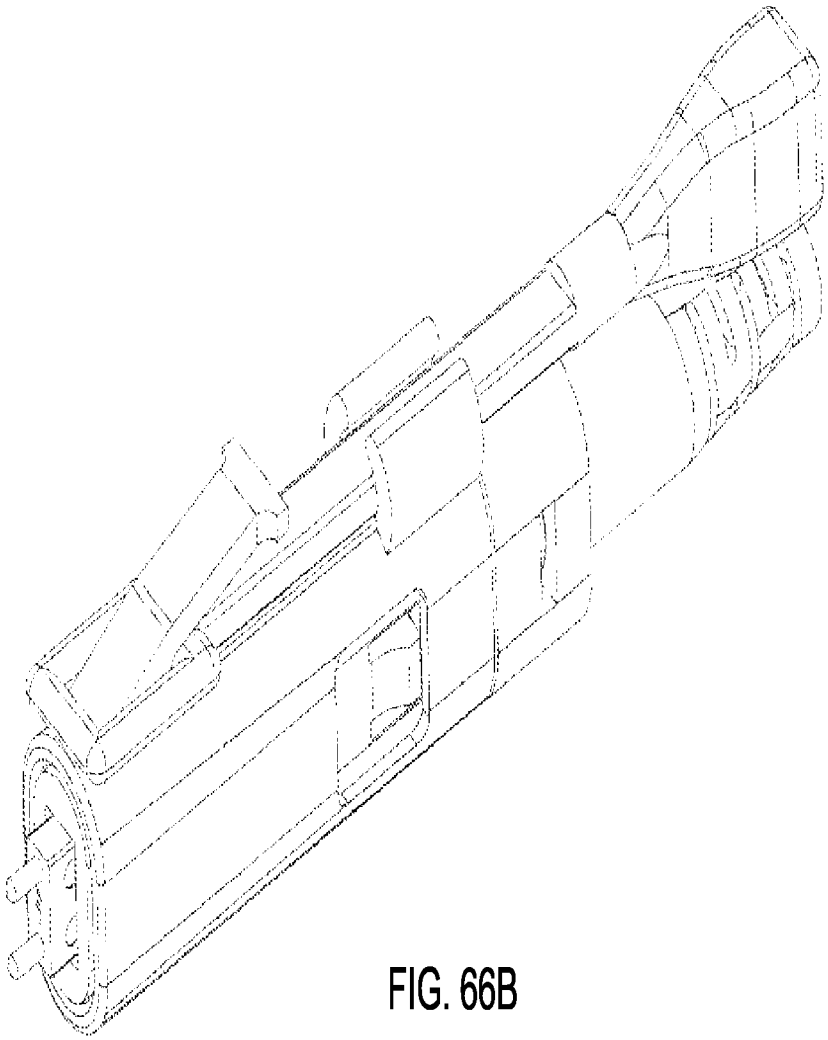


FIG. 66B

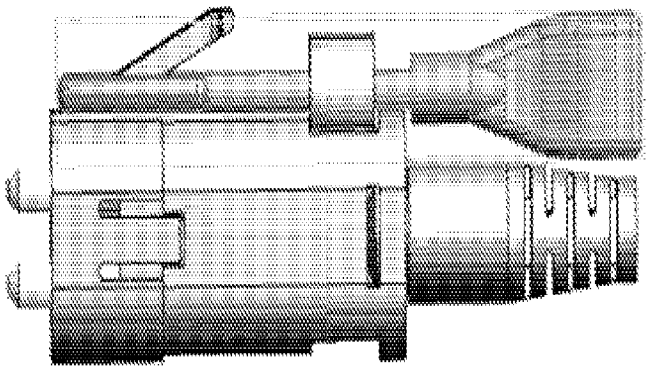


FIG. 67A

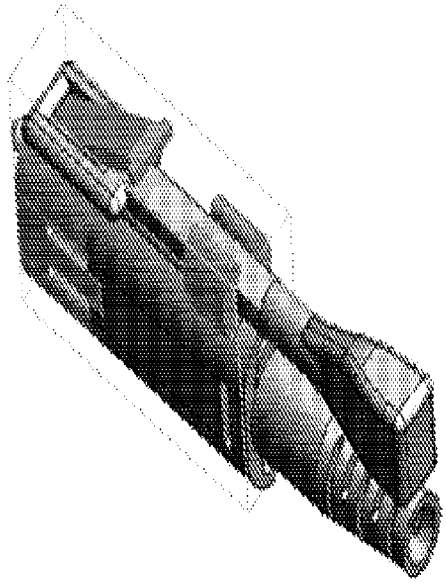


FIG. 67B

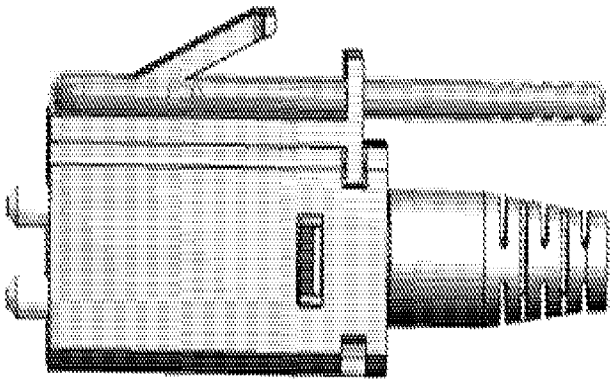


FIG. 67C

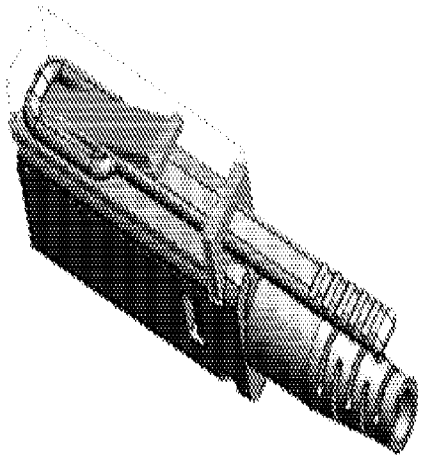


FIG. 67D

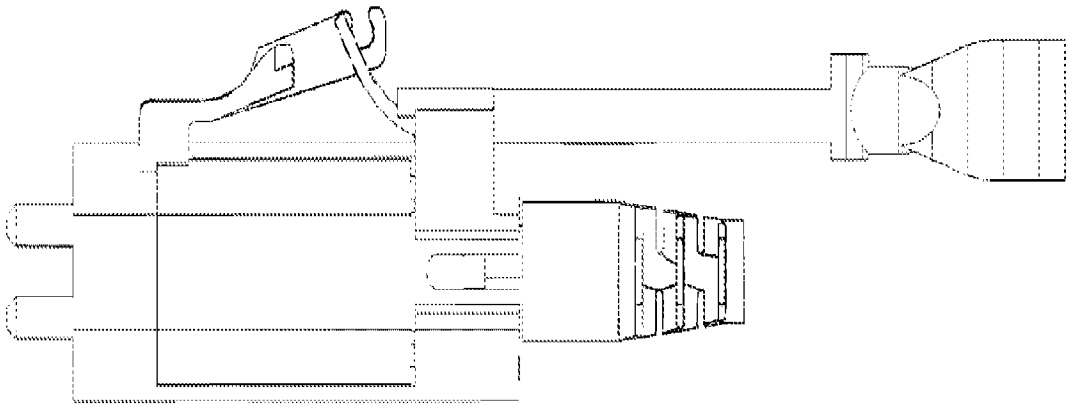


FIG. 68A

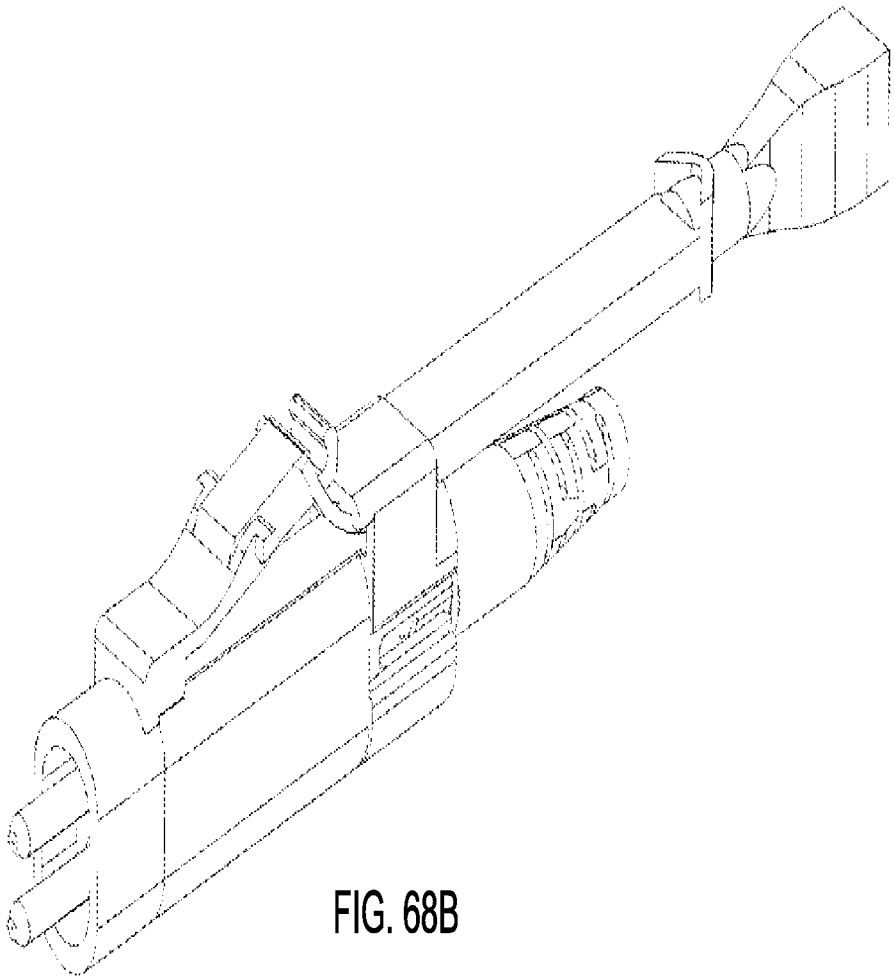


FIG. 68B

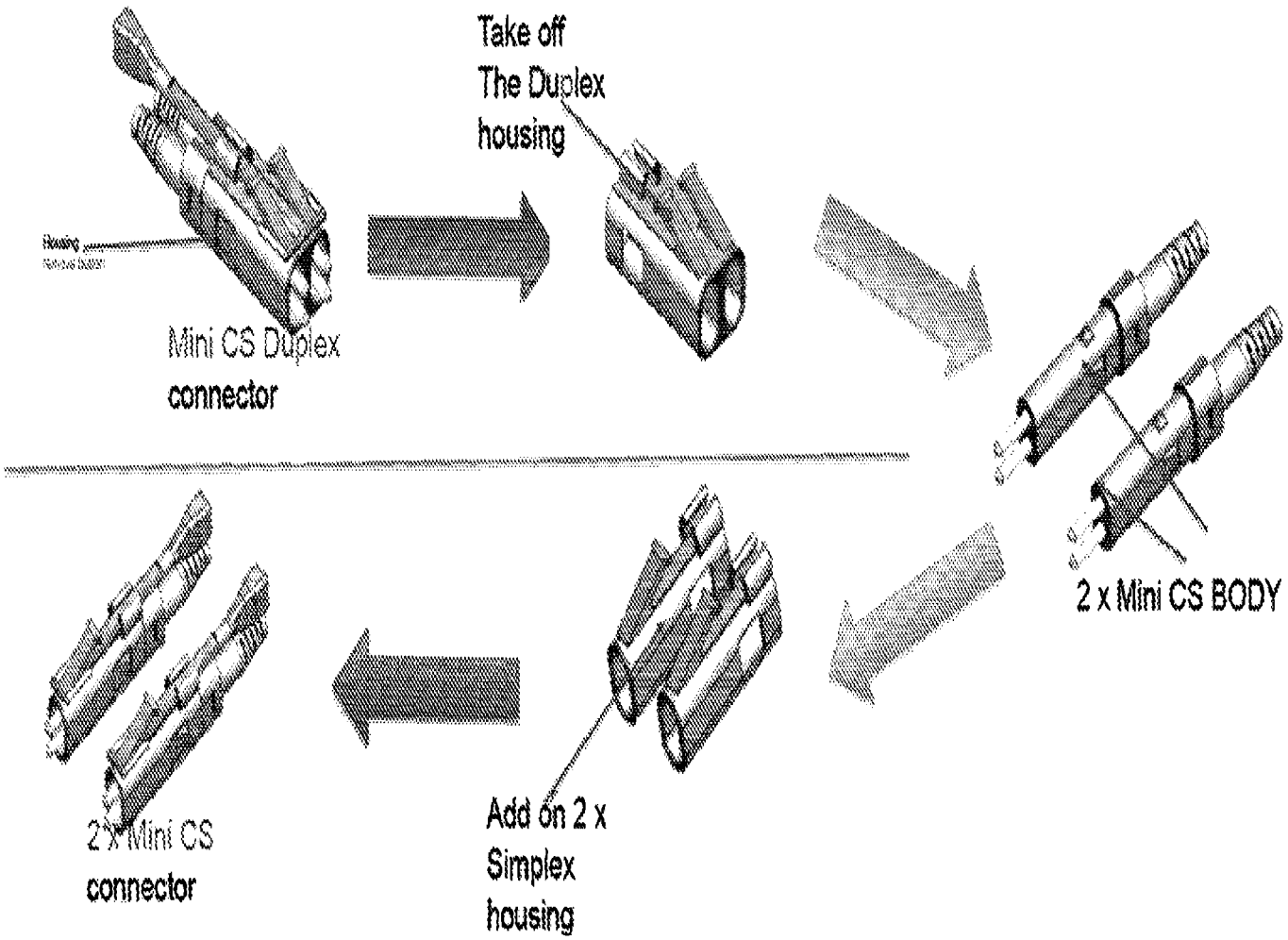

Take off
The Duplex
housing
Mini CS Duplex
connector
2 x Mini CS BODY
2 x Mini CS
connector
Add on 2 x
Simplex
housing

FIG. 69

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi Takano
Filer:	Jonathan G. Pollmann/Meagan Fitzpatrick
Attorney Docket Number:	S09100US61

Filed as Small Entity

Filing Fees for Track I Prioritized Examination - Nonprovisional Application under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY FILING FEE (ELECTRONIC FILING)	4011	1	80	80
UTILITY SEARCH FEE	2111	1	350	350
UTILITY EXAMINATION FEE	2311	1	400	400
REQUEST FOR PRIORITIZED EXAMINATION	2817	1	2100	2100
Pages:				
Claims:				
CLAIMS IN EXCESS OF 20	2202	10	50	500
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**3430**

Electronic Acknowledgement Receipt

EFS ID:	43195641
Application Number:	17370057
International Application Number:	
Confirmation Number:	1025
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi Takano
Customer Number:	321
Filer:	Jonathan G. Pollmann/Meagan Fitzpatrick
Filer Authorized By:	Jonathan G. Pollmann
Attorney Docket Number:	S09100US61
Receipt Date:	08-JUL-2021
Filing Date:	
Time Stamp:	10:20:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$3430
RAM confirmation Number	E202178A20260311
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		Application.pdf	264610 5b097e8d04cdaebb8b562d2c10ec2ef1325643ac	yes	54
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Abstract		54	54	
	Claims		49	53	
	Specification		1	48	
Warnings:					
Information:					
2	Oath or Declaration filed	TakanoDeclaration.PDF	1418802 37fba8bd182a76b7f8e7b231cc74dec56d1be833	no	1
Warnings:					
Information:					
3	Oath or Declaration filed	ChangDeclaration.PDF	1418800 be41799b7014405bb3d5a40cbbc915aa1643b931	no	1
Warnings:					
Information:					
4	Application Data Sheet	ADS.PDF	1256966 566562bf599d84509f596e2bfbebdaa1eee11f93	no	9
Warnings:					
Information:					
5	Power of Attorney	POA.PDF	203822 bf8407cdd60526682b17d1a245e1db2eb745b3fa	no	2

Warnings:					
Information:					
6	TrackOne Request	TrackOneRequest.PDF	177194 69acd15c45ae220b71b736c86f98ee12d0f65883	no	2
Warnings:					
Information:					
7	Drawings-only black and white line drawings	Drawings1.pdf	2695162 2c53891d545493394dd976d95b705dc0047ab040	no	82
Warnings:					
Information:					
8	Fee Worksheet (SB06)	fee-info.pdf	38796 e372e10a3dd35333fc1dc4be2c32c24803842a37	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	7474152		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

ABSTRACT

An optical connector holding one or more optical ferrule assembly is provided. The optical connector includes an outer body, an inner front body accommodating the one or more optical ferrule assembly, ferrule springs for urging the optical ferrules towards a mating receptacle, and a back body for supporting the ferrule springs. The outer body and the inner front body are configured such that four optical ferrule assembly are accommodated in a small form-factor pluggable (SFP) transceiver footprint or eight optical ferrule assembly are accommodated in a quad small form-factor pluggable (QSFP) transceiver footprint. A receptacle can hold one or more connector inner bodies forming a single boot for all the optical fibers of the inner bodies.

The invention claimed is:

1. An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch.

2. The optical fiber connector as set forth in claim 1, wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

3. The optical fiber connector as set forth in claim 2, wherein the guide defines a groove extending along the longitudinal axis.

4. The optical fiber connector as set forth in claim 3, wherein the elongate arm is slidably received in the groove.

5. The optical fiber connector as set forth in claim 1, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

6. The optical fiber connector as set forth in claim 5, wherein the front end portion defines an opening.

7. The optical fiber connector as set forth in claim 6, wherein the depressible latch is received in the opening.

8. The optical fiber connector as set forth in claim 7, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion.

9. The optical fiber connector as set forth in claim 8, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

10. The optical fiber connector as set forth in claim 9, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

11. The optical fiber connector as set forth in claim 10, wherein the depressible latch arm has an upper surface, the edge opposing the upper surface.

12. The optical fiber connector as set forth in claim 11, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

13. The optical fiber connector as set forth in claim 5, further comprising a push/pull tab extending from the rear end portion of the elongate arm.

14. The optical fiber connector as set forth in claim 1, wherein the connector housing includes a front body and a back body.

15. The optical fiber connector as set forth in claim 14, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

16. The optical fiber connector as set forth in claim 14, further comprising a single cable boot extending rearward from the back body.

17. The optical fiber connector as set forth in claim 1, further comprising a single cable boot extending rearward from the connector housing.

18. An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch.

19. The optical fiber connector as set forth in claim 18, wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

20. The optical fiber connector as set forth in claim 19, wherein the guide defines a groove extending along the longitudinal axis.

21. The optical fiber connector as set forth in claim 20, wherein the elongate arm is slidably received in the groove.

22. The optical fiber connector as set forth in claim 18, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

23. The optical fiber connector as set forth in claim 22, wherein the front end portion defines an opening.

24. The optical fiber connector as set forth in claim 23, wherein the depressible latch is received in the opening.

25. The optical fiber connector as set forth in claim 24, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion.

26. The optical fiber connector as set forth in claim 25, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

27. The optical fiber connector as set forth in claim 26, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

28. The optical fiber connector as set forth in claim 27, wherein the depressible latch arm has an upper surface, the edge opposing the upper surface.

29. The optical fiber connector as set forth in claim 28, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

30. The optical fiber connector as set forth in claim 22, further comprising a push/pull tab extending from the rear end portion of the elongate arm.

ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Cross-Reference to Related Applications

[0001] This application claims priority as continuation of U.S. Patent Application 17/327,197 filed on 05/21/21 entitled "ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING" which is a continuation of 17/090,855 filed 11/05/20 entitled "ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS A PART OF A RECONFIGURABLE OUTER HOUSING" which is a continuation of U.S. Patent Application No. 16/414,546 filed 05/16/19 entitled "ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING" which is a continuation of U.S. Patent Application 16/388,053 filed 04/18/19 entitled "Ultra-Small Form Factor Optical Connectors", which is a continuation of U.S. Patent Application 16/035,691, filed 07/15/2018 entitled "Ultra-Small Form Factor Optical Connectors" now U.S. Patent 10,281,668 granted May 7, 2019, which claims priority to the following: U.S Provisional Patent Application Serial Numbers 62/532,710 filed July 14, 2017, 62/549,655 filed August 24, 2017, and 62/588,276 filed November 17, 2017, all the disclosures of which are incorporated by reference herein.

Field of the Invention

[0002] The present disclosure relates generally to ultra-small form factor optical connectors and related connections within adapters and optical transceivers.

Background

[0003] The prevalence of the Internet has led to unprecedented growth in communication networks. Consumer demand for service and increased competition has caused network providers to continuously find ways to improve quality of service while reducing cost.

[0004] Certain solutions have included deployment of high-density interconnect panels. High-density interconnect panels may be designed to consolidate the increasing volume of interconnections necessary to support the fast-growing networks into a compacted form factor, thereby increasing quality of service and decreasing costs such as floor space and support overhead. However, room for improvement in the area of data centers, specifically as it relates to fiber optic connections, still exists. For example, manufacturers of connectors and adapters are always looking to reduce the size of the devices, while increasing ease of deployment, robustness, and modifiability after deployment. In particular, more optical connectors may need to be accommodated in the same footprint previously used for a smaller number of connectors in order to provide backward compatibility with existing data center equipment. For example, one current footprint is known as the small form-factor pluggable transceiver footprint (SFP). This footprint currently accommodates two LC-type ferrule optical connections. However, it may be desirable to accommodate four optical connections (two duplex connections of transmit/receive) within the same footprint. Another current footprint is the quad small form-factor pluggable (QSFP) transceiver footprint. This footprint currently accommodates four LC-type ferrule optical connections. However, it may be desirable to accommodate eight optical connections of LC-type ferrules (four duplex connections of transmit/receive) within the same footprint.

[0005] In communication networks, such as data centers and switching networks, numerous interconnections between mating

connectors may be compacted into high-density panels. Panel and connector producers may optimize for such high densities by shrinking the connector size and/or the spacing between adjacent connectors on the panel. While both approaches may be effective to increase the panel connector density, shrinking the connector size and/or spacing may also increase the support cost and diminish the quality of service.

[0006] In a high-density panel configuration, adjacent connectors and cable assemblies may obstruct access to the individual release mechanisms. Such physical obstructions may impede the ability of an operator to minimize the stresses applied to the cables and the connectors. For example, these stresses may be applied when the user reaches into a dense group of connectors and pushes aside surrounding optical fibers and connectors to access an individual connector release mechanism with his/her thumb and forefinger. Overstressing the cables and connectors may produce latent defects, compromise the integrity and/or reliability of the terminations, and potentially cause serious disruptions to network performance.

[0007] While an operator may attempt to use a tool, such as a screwdriver, to reach into a dense group of connectors and activate a release mechanism, adjacent cables and connectors may obstruct the operator's line of sight, making it difficult to guide the tool to the release mechanism without pushing aside the adjacent cables. Moreover, even when the operator has a clear line of sight, guiding the tool to the release mechanism may be a time-consuming process. Thus, using a tool may not be effective at reducing support time and increasing the quality of service.

SUMMARY OF THE INVENTION

[0008] An optical connector holding two or more LC-type optical ferrules is provided. The optical connector includes an outer body, an inner front body accommodating the two or more LC-type optical ferrules, ferrule springs for urging the optical ferrules towards a mating receptacle, and a back body for supporting the ferrule springs. The outer body and the inner front body are configured such that four LC-type optical ferrules are accommodated in a small form-factor pluggable (SFP) transceiver footprint or eight LC-type optical ferrules are accommodated in a quad small form-factor pluggable (QSFP) transceiver footprint. A mating receptacle (transceiver or adapter) includes a receptacle hook and a housing with an opening that accommodates the receptacle hook in a flexed position as the optical connector makes connection with the mating receptacle by introducing the receptacle hook into an optical receptacle hook recess.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] FIG. 1A is a perspective view of a prior art standard 6.25mm pitch LC connector SFP;

[0010] FIG. 1B is a perspective view of a prior art standard 6.25mm pitch LC adapter;

[0011] FIG. 1C is a top view of the prior art adapter of FIG. 1B;

[0012] FIG. 1D is a front view of the prior art adapter of FIG. 1B, showing the 6.25mm pitch;

[0013] FIG. 2A is a perspective view of a prior art LC duplex connector;

[0014] FIG. 2B is a perspective view of a prior art LC duplex connector with a remote release pull tab;

[0015] FIG. 2C is a top view of a prior art LC connector used in the embodiments shown in FIGS. 2A and 2B;

[0016] FIG. 2D is a side view of the prior art LC connector of FIG. 2C;

[0017] FIG. 3 is an exploded view of one embodiment of a connector;

[0018] FIG. 4 is a perspective view of one embodiment of a connector;

[0019] FIG. 5 is a perspective view of one embodiment of a connector with the outer housing removed from the front body.

[0020] FIG. 6 is a perspective view of one embodiment of a duplex connector;

[0021] FIG. 7 is a perspective view of another embodiment of a duplex connector;

[0022] FIG. 8 is a perspective view of one embodiment of a quad connector;

[0023] FIG. 9 is another perspective view of one embodiment of a quad connector;

[0024] FIG. 10 shows various embodiments of adapter types;

[0025] FIG. 11A is a side view of a connector connected to an adapter;

[0026] FIG. 11B is a side view of a connector being removed from an adapter;

[0027] FIG. 12A is a side view of the outer housing of a connector being removed;

[0028] FIG. 12B is a perspective view of a transparent outer housing of a connector showing the front body;

[0029] FIG. 13 is a perspective view of one embodiment of a quad connector inserted into a corresponding adapter;

[0030] FIGS. 14A-C are illustrative examples of cable management using various embodiments of connectors;

[0031] FIG. 15A-B are illustrative examples of cable management using multiple fiber strands per jacket;

[0032] FIG. 16 is an illustrative example of using a cable management system using multiple fiber strands per jacket.

[0033] FIG. 17 is another illustrative example of using a cable management system using multiple fiber strands per jacket.

[0034] FIGS. 18A-B are various views of one embodiment of a MT connector.

[0035] FIGS. 19A-D are illustrative examples of possible alternative connector designs.

[0036] FIGS. 20 shows moving two connectors from a duplex connector to two simplex connectors.

[0037] FIG. 21A is an exploded view of a micro optical connector according to an embodiment.

[0038] FIG. 21B is a perspective view of the assembled micro optical connector of FIG 21A.

[0039] FIG. 22 is a front view of the micro optical connector of FIG. 21B showing overall connector dimensions and ferrule pitch.

[0040] FIG. 23A is a cross-sectional view of the micro optical connector of FIG. 21B latched into the adapter of FIG. 24.

[0041] FIG. 23B is a cross-sectional view of the micro optical connectors of FIG. 21B unlatched from the adapter of FIG. 24.

[0042] FIG. 24 is an exploded view of an adapter for the micro optical connectors of FIG. 21B.

[0043] FIG. 25A is a cross-sectional view of the adapter of FIG. 24, assembled.

[0044] FIG. 25B is a cross-sectional side view of the adapter housing of FIG. 24.

[0045] FIG. 26 is a front view of the assembled adapter of FIG. 24.

[0046] FIG. 27A is an isometric view of the front body of the micro optical connector of FIG. 21A.

[0047] FIG. 27B is a right side view of the front body of FIG. 27A.

[0048] FIG. 28A is an isometric view of the back body of the micro optical connector of FIG. 21A.

[0049] FIG. 28B is a side view of the back body of FIG. 28A.

[0050] FIG. 29A is an isometric view of the outer housing of the micro optical connector of FIG. 21A.

[0051] FIG. 29B is a front view of the outer housing of FIG. 29A.

[0052] FIG. 29C is a cross-sectional view of the outer housing of FIG. 29A showing the top of an orientation protrusion.

[0053] FIG. 29D is an inner view of the outer housing of FIG. 29A;

[0054] FIG. 29E is an inner view of the outer housing of FIG. 29A.

[0055] FIG. 30 is a side view of an adapter hook of the adapter of FIG. 24.

[0056] FIG. 31 is an isometric view of the adapter of FIG. 24 assembled with the micro optical connectors of FIG. 21B.

[0057] FIG. 32A is cross-sectional view of a prior art connector showing a latch gap.

[0058] FIG. 32B is a cross-sectional view of the micro optical connector of FIG. 21B latched (left) and unlatched (right) within the adapter of FIG. 24, assembled.

[0059] FIG. 33A depicts the micro optical connector of FIG. 21B in a QSFP footprint, depicting dimensions in millimeters.

[0060] FIG. 33B depicts the micro optical connectors of FIG. 21B in an SFP footprint, depicting dimensions in millimeters.

[0061] FIG. 34A-34C depicts adapter hooks interacting with the micro optical connectors of FIG. 21B before (FIG. 34A), during (FIG. 34B), and after (FIG. 34C) latching.

[0062] FIG. 35A-FIG. 35C depicts the micro optical connector of FIG. 21B side flap operation before (FIG. 35A), during (FIG, 35B), and after (FIG. 35C) latching.

[0063] FIG. 36A depicts plural micro optical connectors in a transceiver.

[0064] FIG. 36B is a front view of the transceiver of FIG. 36A.

[0065] FIG. 37 is an exploded view of a micro optical connector according to a further embodiment.

[0066] FIG. 38 is an isometric view of a front body of the micro optical connector of FIG. 37.

[0067] FIG. 39 is an isometric view of a back body of the micro optical connector of FIG. 37.

[0068] FIGS. 40A, 40B, and 40C depict a technique for reversing polarity of the optical connector of FIG. 37.

[0069] FIG. 41 is an exploded view of a micro optical connector according to a further embodiment.

[0070] FIG. 42A is an isometric view of the front body of the micro optical connector of FIG. 41.

[0071] FIG. 42B is a side view of the front body of FIG. 42A.

[0072] FIG. 43 is an isometric view of the back body of the micro optical connector of FIG. 41.

[0073] FIGS. 44A, 44B, and 44C are isometric views of the outer housings that may be used with any of the micro optical connectors of FIGS. 21A, 37, and 41.

[0074] FIG. 45 is an exploded view of an adapter according to a further embodiment.

[0075] FIG. 46 is a cross-section of the adapter of FIG. 45, assembled.

[0076] FIG. 47 is an exploded view of a connector according to another embodiment.

[0077] FIG. 48 is an isometric view of the back body and the back post of the connector of FIG. 47.

[0078] FIG. 49 is a cross-section of the back post of FIG. 47 assembled with optical fibers.

[0079] FIG. 50 is a front view of the connector of FIG. 47.

[0080] FIG. 51 is an isometric view of the boot of the connector of FIG. 47.

[0081] FIG. 52 is a front view of the adapter of FIG. 45.

[0082] FIG. 53 is a exploded view of one embodiment of a connector;

[0083] FIG. 54 is a perspective view of one embodiment of a connector;

[0084] FIG. 55 is a perspective view of one embodiment of a connector with the outer housing removed from the front body

[0085] FIG. 56 is a perspective view of one embodiment of a duplex connector;

[0086] FIG. 57 is a perspective view of another embodiment of a duplex connector;

[0087] FIG. 58 is a perspective of one embodiment of a quad connector;

[0088] FIG. 59 is a perspective of another embodiment of a quad connector;

[0089] FIG. 60 is a perspective of another embodiment of a quad connector;

[0090] FIG. 61 is a perspective of one embodiment of a quad connector inserted into a corresponding adapter;

[0091] FIGS. 62A-C are illustrative examples of cable management using various embodiments of connectors;

[0092] FIG. 63A-B are illustrative examples of cable management using multiple fiber strands per jacket;

[0093] FIG. 64 is an illustrative example of using a cable management system using multiple fiber strands per jacket.

[0094] FIG. 65 is another illustrative example of using a cable management system using multiple fiber strands per jacket;

[0095] FIG. 66A-B are various views of one embodiment of a MT connector.

[0096] FIGs. 67 A-D are illustrative examples of possible alternative connector designs.

[0097] FIGs. 68A-B are illustrative examples of additional possible alternative connector designs.

[0098] FIG. 19 is an illustrative examples of a method of switching modes of operation of one or more connectors.

DETAILED DESCRIPTION

[0099] This disclosure is not limited to the particular systems, devices and methods described, as these may vary. The terminology used in the description is for the purpose of describing the particular versions or embodiments only, and is not intended to limit the scope.

[0100] As used in this document, the singular forms "a," "an," and "the" include plural references unless the context clearly dictates otherwise. Unless defined otherwise, all technical and scientific terms used herein have the same meanings as commonly understood by one of ordinary skill in the art. Nothing in this disclosure is to be construed as an admission that the embodiments described in this disclosure are not entitled to antedate such disclosure by virtue of prior invention. As used in this document, the term "comprising" means "including, but not limited to."

[0101] The following terms shall have, for the purposes of this application, the respective meanings set forth below.

[0102] A connector, as used herein, refers to a device and/or components thereof that connects a first module or cable to a second module or cable. The connector may be configured for fiber optic transmission or electrical signal transmission. The connector may be any suitable type now known or later developed, such as, for example, a ferrule connector (FC), a fiber distributed data interface (FDDI) connector, an LC connector, a mechanical transfer (MT) connector, a square connector (SC) connector, a CS connector, or a straight tip (ST) connector. The connector may generally be defined by a connector housing body. In some embodiments, the housing body may incorporate any or all of the components described herein.

[0103] A "fiber optic cable" or an "optical cable" refers to a cable containing one or more optical fibers for conducting optical signals in beams of light. The optical fibers can be constructed from any suitable transparent material, including glass, fiberglass, and plastic. The cable can include a jacket or sheathing material surrounding the optical fibers. In addition, the cable can be connected to a connector on one end or on both ends of the cable.

[0104] Various embodiments described herein generally provide a remote release mechanism such that a user can remove cable assembly connectors that are closely spaced together on a high density panel without damaging surrounding connectors, accidentally disconnecting surrounding connectors, disrupting transmissions through surrounding connectors, and/or the like. Various embodiments also provide narrow-pitch LC duplex connectors and narrow-width multi-fiber connectors, for use, for example, with future narrow-pitch LC SFPs and future narrow width SFPs. The remote release mechanisms allow use of the narrow-pitch LC duplex connectors and narrow-width multi-fiber connectors in dense arrays of narrow-pitch LC SFPs and narrow-width multi-fiber SFPs.

[0105] FIG. 1A shows a perspective view of a prior art standard 6.25mm pitch LC connector SFP 100. The SFP 100 is configured to receive a duplex connector and provides two receptacles 102, each for receiving a respective LC connector. The pitch 104 is defined as the axis-to-axis distance between the central longitudinal axes of each of the two receptacles 102. FIG. 1B shows a perspective view of a prior art standard 6.25 mm pitch LC adapter 106. The adapter 106 is also configured to receive a duplex connector, and provides two receptacles 108, each for receiving a respective LC connector. FIG. 1C is a top view of the adapter 106 of FIG. 1B. The pitch of the adapter 106 is defined similarly to that of the SFP 100, as the axis-to-axis distance between the central longitudinal axes of each of the two receptacles 108, as illustrated in FIG. 1D, which shows a front view of the adapter 106.

[0106] FIG. 2A shows a prior art LC duplex connector 200 that may be used with the conventional SFP 100 and the conventional adapter 106. The LC duplex connector 200 includes two conventional LC connectors 202. FIG. 2B shows another prior art LC duplex connector 204 having a remote release pull tab 206, and including

two conventional LC connectors 208. As shown, the remote release pull tab includes two prongs 210, each configured to couple to the extending member 212 of a respective LC connector 208. FIGS. 2C and 2D show top and side views, respectively, of the conventional LC connector 208, having a width of 5.6 mm, and further showing the extending member 212.

[0107] As discussed herein, current connectors may be improved by various means, such as, for example, reducing the footprint, increasing the structural strength, enabling polarity changes, etc. Various embodiments disclosed herein offer improvements over the current state of the art, as will be further discussed below.

[0108] In some embodiments, as shown in FIG. 3, a connector 300 may comprise various components. Referring to FIG. 3, an illustrative embodiment of a connector 300 is shown in an exploded view to display detail. In some embodiments, and as discussed further herein, a connector 300 may have an outer housing 301, a front body 302, one or more ferrules 303, one or more ferrule flanges 304, one or more springs 305, a back body 306, a back post 307, a crimp ring 308, and a boot 309. In some embodiments, the back body 306 may comprise one or more protrusions 306.1 which may interlock with a window/cutout 302.1 in the front body 302. This may allow for the back body 306 and the front body 302 to be securely fastened together around the ferrule(s) 303, ferrule flange(s) 304, and the spring(s) 305. The elements of FIG. 3 are configured such that two optical connectors having four LC-type optical ferrules may be accommodated in a small form-factor pluggable (SFP) transceiver footprint or at least two optical connectors having a total of eight LC-type optical ferrules may be accommodated in a quad small form-factor pluggable (QSFP) transceiver footprint.

[0109] Referring now to FIG. 4, an embodiment is shown wherein the connector 400 is assembled. In some embodiments, the assembled connector may have an outer housing 401, a front body 402 positioned within the outer housing, one or more ferrules 403, one or more ferrule flanges (not shown), one or more springs (not shown), a back body 406, a back post (not shown), a crimp ring (not shown), a boot 409, and a push-pull tab 410. In some embodiments, the connector may have one or more latching mechanisms made up of a window 412 on the outer housing 401 near the push-pull tab 410 and a protrusion 413 on the front body. The latching mechanism made up of the window 412 and protrusion 413 securely attaches the outer housing 401 to the front body 402. In a further embodiment, the outer housing 401 may have a recess 411 to receive a locking tab or locking mechanism from an adapter (depicted in FIG. 13, below). The recess 411 of the outer housing 401 is used to interlock with an adapter (depicted in FIG. 13, below) or transceiver receptacle to secure the connector into the adapter. As would be understood by one skilled in the art, the push-pull tab 410 enables removal of the connector from a receptacle without requiring additional tools. Alternatively, the push-pull tab may be eliminated and the connector removed manually. In one or more further embodiments, the outer housing 401 may also have a key 414. The key 414 may keep the connector in a given orientation when inserted into a receptacle such as an adapter or transceiver.

[0110] FIG. 5 depicts a procedure for changing the polarity of the optical connectors of the present disclosure. As shown in FIG. 5, in some embodiments, the latching mechanism of the connector 500 may be made up of two main parts: a window (not visible) and one or more protrusions 513. As illustrated in FIG. 5, the outer housing 501 can slide on to or be removed from the front body 502 by disengaging the latching mechanisms formed by the protrusion 513 exiting through the window, whereby it contacts

a rear wall of the window (refer to FIG. 4 for an illustrated example of the outer housing being attached to the front body via the latching mechanism). In some embodiments, the push-pull tab 510 may be permanently attached to the outer housing 501, as shown.

[0111] The front body 502 may be removed from the outer housing 501, rotated 180° as indicated by arrow 520, and re-inserted into the outer housing. This allows for a change in the polarity of the front body 502, as shown by the arrow diagram in FIG. 5, and therefore the ferrules can switch quickly and easily without unnecessarily risking the delicate fiber cables and ferrules.

[0112] In some embodiments, it may be beneficial to connect two or more connectors together to increase structural integrity, reduce the overall footprint, and cut manufacturing costs. Accordingly, as shown in FIG. 6, a connector 600 may in some embodiments, utilize an outer housing 601 that is capable of holding two front bodies 602. Various other embodiments are disclosed herein, and it should be noted that the embodiments disclosed herein are all non-limiting examples shown for explanatory purposes only.

[0113] Accordingly, although the embodiment shown in FIG. 6 utilizes a duplex outer housing 601, additional or alternative embodiments may exist with more capacity, for example, six or eight optical connectors within a single outer housing. As shown in FIG. 6, in some embodiments, the outer housing 601 may accept two front bodies 602, each with two separate ferrules 603. As shown, the front body(s) 602 may securely fasten to the outer housing 601 via the latching mechanism 612 and 613. In additional embodiments, the push-pull tab 610 may be modified, as shown, such that a single tab can be used to free the two or more connectors from an adapter. As illustrated in FIG. 6, the uni-body push-pull tab 610 and the outer housing 601 may have two windows 612 with which to receive

multiple protrusions 613 of the front body(s) 602. As discussed herein the recesses 611 of the outer housing 601 are used to secure the connectors to an adapter (depicted in FIG. 13 below). In one or more further embodiments, the connectors may have individual back bodies 606 and boots 609 (i.e., one back body/boot per front body) as shown.

[0114] Alternatively, in some embodiments, such as that shown in FIG. 7, the connector 700 may have a single boot 709 and a duplex (i.e., uni-body) back body 706 instead of individual back bodies (e.g., such as shown in FIG. 6). In some embodiments, the duplex back body 706 may have different dimensions than that of the individual back bodies of FIG. 6, such as, for example, they may be longer to accommodate the need for routing the fiber after it exits the boot 709. As with other embodiments discussed herein, the connector shown in FIG. 7 may also include an outer housing (e.g., duplex outer housing) 701, one or more ferrules 703, at least one latching mechanism formed by the protrusion (not shown) exiting through one or more windows 712, and a push-pull tab 710.

[0115] As stated, it may be beneficial to connect two or more connectors together to increase structural integrity, reduce the overall footprint, and cut manufacturing costs. Accordingly, similar to FIG. 6, FIG. 8 shows a connector 800 that may, in some embodiments, utilize an outer housing 801 that is capable of holding multiple (e.g., four) front bodies 802.

[0116] As shown in FIG. 8, some embodiments may have an outer housing 801 able to accept up to four front bodies 802, each with one or more ferrules 803. As shown, each front body 802 may securely fasten to the outer housing 801 via the latching mechanism 812 and 813. In additional embodiments, the push-pull tab 810 may be modified such that a single tab can be used to remove the up to four connectors from an adapter. As illustrated in FIG. 8, the push-pull tab 810 may include four recesses 811, which as discussed

herein are used to secure the connector to a receptacle such as an adapter (shown in FIG. 13, below) or the front receptacle portion of a transceiver. In one or more further embodiments, the connectors may have individual back bodies 806 and boots 809 (i.e., one back body/boot per front body) as shown.

[0117] Similar to FIG. 8, FIG. 9 shows an embodiment where the outer housing 901 is able to accept up to four front bodies 902, each with one or more ferrules 903. As shown, each front body 902 may securely fasten to the outer housing 901 via the latching mechanism 912 and 913. In additional embodiments, the push-pull tab 910 may be modified such that a single tab can be used to remove the up to four CS connectors from an adapter. As illustrated in FIG. 9, the push-pull tab 910 may include four recesses 911, which as discussed herein are used to secure the connector to an adapter (shown in FIG. 13, below) or the optical receptacle portion of a transceiver. The FIG. 9 embodiment may utilize a single back body 906 and a single boot 909. In one or more further embodiments, the connectors may have individual back bodies 906 and boots 909 (i.e., one back body/boot for all four front bodies) as shown.

[0118] In another aspect, the present disclosure provides method for reconfiguring optical cables in which the outer housings of the connectors may be removed and the remaining portion of the assembled connector is inserted into a housing having a larger or smaller capacity.

For example, the outer housings of plural two-ferrule capacity housings may be removed and the connector inner body and associated components inserted into a second outer housing that has either a four-ferrule or eight-ferrule capacity. Alternatively, an outer housing with a four-ferrule capacity may be removed and the inner bodies and associated components are inserted into two second outer housings, each of the two second housings having a two-ferrule capacity. Similarly, an outer housing with an eight-ferrule

capacity may be removed and replaced by two four-ferrule capacity housing or a four-ferrule capacity and two two-ferrule capacity housings. In this manner, cables may be flexibly reconfigured to match the capacity of a mating optical-electrical component such as a transceiver. This aspect of the present disclosure is demonstrated in connection with FIG. 10.

[0119] Referring now to FIG. 10, various embodiments may exist such as a single housing 1001 which receives a single connector 1002. Additional embodiments may also exist, such as a duplex housing 1003 which receives two connectors 1004 and/or a quad housing 1005 which may receive up to four connectors 1006. It should be understood by one skilled in the art that various other embodiments may exist that are not explicitly shown. For example, a housing with the capacity for 5, 6, 7, 8, 9, 10 or more connectors may be utilized for various embodiments disclosed herein. As shown below, it is desirable to have flexible housing configurations so that connectors may be grouped and ungrouped between optical and optoelectronic components such as adapters and transceivers.

[0120] Alternatively, in some embodiments the connector may utilize one or more duplex back bodies with a single boot, similar to that shown in FIG. 7. Thus, similar to FIG. 7, an embodiment may allow for a further reduced footprint, less cabling, and easier maintenance of the connector. Accordingly, one or more embodiments may have an outer housing that may accept up to four front bodies, each with one or more ferrules. In some embodiments, each front body may securely fasten to the outer housing via a latching mechanism. In additional embodiments, the push-pull tab may be modified such that a single tab can be used to free the up to four front bodies from an adapter. The push-pull tab may include four openings with which to receive multiple locking tabs of the outer housing. As discussed herein the locking tabs of the outer

housing are used to secure the connectors to an adapter (shown in FIG. 13) or the optical receptacle portion of a transceiver.

[0121] In further embodiments, the connector may utilize a single uni-body back body with a single boot (i.e., as shown in FIG. 9). Thus, an embodiment may allow for a further reduced foot print, less cabling, and easier maintenance of the connector. Accordingly, one or more embodiments may have an outer housing that may accept up to four front bodies, each with one or more ferrules. Each front body may securely fasten to the outer housing via the latching mechanism as discussed herein. In additional embodiments, the push-pull tab may be modified such that a single tab can be used to remove up to four connectors from an adapter. The push-pull tab may include four openings with which to receive multiple locking tabs of the outer housing. As discussed herein the locking tabs of the outer housing are used to secure the connectors to an adapter.

[0122] The optical connectors of the present disclosure are all configured to be received in a receptacle. As used herein, the term "receptacle" relates generically to a housing that receives an optical connector. A receptacle includes both optical adapters, that is, components that mate two or more optical connectors, and transceivers, which include an optical receptacle to hold connectors that are to communicate with an optoelectronic component (e.g., a component that converts optical signals to electrical signals). As shown in FIG. 11A, in one embodiment 1100A, the outer housing 1101 may comprise one or more recesses 1111. As discussed and shown herein, the one or more recesses may allow for a receptacle 1114 to securely connect to the connector 1100A. Accordingly, in some embodiments, the receptacle 1114 may have a receptacle hook 1115, which is flexible and can secure the connector 1100A into the receptacle via latching onto the wall of the recess 1111, as shown. This latching takes place when the outer

housing 1101 is pushed forward into the receptacle. The sloped portions of the outer housing 1101 allow the receptacle hook 1115 to slide up and over the front of the outer housing thereby securing the connector 1100A into the receptacle.

[0123] Additionally or alternatively, in some embodiments, such as that shown in FIG. 11B, a connector 1100B may be removed from a receptacle 1114 by pulling the connector away from the adapter as indicated by the directional arrow. In some embodiments, the force may be applied by a user via the push-pull tab 1110. Alternatively, when a push-pull tab is not present, the connector may still be manually removed from a receptacle. As shown in FIG. 11B, as the connector 1100B is removed from the receptacle 1114, the flexible receptacle hooks 1115 separate and slide up the slope of the end of the connector and allow for removal of the connector from the receptacle.

[0124] Referring now to FIGS. 12A and 12B, as discussed herein and previously shown in FIG. 5, the front body 1202 can be removed from the outer housing 1201. In some embodiments, a portion of the outer body 1201 can be flexibly extended away from the front body 1202 as shown by the arrows in FIG. 12A. As discussed herein, in some embodiments, the front body 1202 may comprise a protrusion 1213 which interlocks with a window (not shown) on the outer housing 1201. Accordingly, when force is applied to the outer housing 1201 in a manner that removes the one or more protrusions 1213 from the one or more windows (not shown, see FIG. 4), the front body 1202 may be removed from the outer housing.

[0125] Referring now to FIG. 13, an embodiment 1300 is shown in which the connector (not shown in its entirety) is inserted into a receptacle such as adapter 1314. In this specific non-limiting example, the connector is similar to that shown in FIG. 8 (i.e., comprising four front bodies each with their own back body 1306 and boot 1309). However, unlike FIG. 8, the

embodiment shown here utilizes four individual push-pull tabs 1310 instead of a duplex push-pull tab system which manipulates two latching tabs per push-pull tab to allow the connector to be removed from the adapter 1314.

[0126] Various benefits and details have been discussed herein with regard to the connectors and their modular ability (e.g., to include multiple connectors into a single housing). In addition to the reduced footprint, structural improvements, and cost reduction, various embodiments herein may also be beneficial with regard to reducing the burden of cabling in a data center environment. Illustrative embodiments shown in FIGS. 14A through 14C depict cable configurations that may be used to reduce the complexity of optical cables in a compact environment. Note that any of the optical connectors described in this disclosure may be used in these embodiments, including the optical connectors of FIGS. 21B, 37, and 41, to be discussed in detail below. FIG. 14A shows two duplex cables similar to the cable shown in FIG. 6. In some embodiments, one or more detachable clips 1401 may be attached to two or more zip cables to prevent the zip cables from detaching. This allows for two or more cables to be bundled and reduce the risk of entanglement with additional cables. FIG. 14B is an illustrative example of how easily an embodiment can separate into two individual connectors by unbinding the cables and thus quickly and easily creating two independent fiber optic channels that can move and be connected independently. FIG. 14C shows an embodiment in which a duplex connector like that of FIGS. 6 and 14A is connected to two separate individual connectors. Through the variable housing configurations depicted above in FIG. 10, the cable of FIG. 14A can be reconfigured as the cables of either 14B or FIG. 14C.

[0127] In addition to binding existing fiber cables, some embodiments herein may utilize a new four fiber zip cable.

Referring now to FIG. 15A, a conventional zip cable (i.e., one with a single fiber strand 1520 per jacket 1521) is shown in comparison with an embodiment in which two fibers 1522 per jacket 1523 are utilized. It should be understood that this is merely a non-limiting example. In some embodiments, multiple fibers may be included per jacket, such as, for example, four fibers per jacket in order to utilize the single boot 909 and uni-body rear body 906 of the connector shown in FIG. 9.

[0128] A specific example using multi-strand cables is shown in FIG. 16 for illustrative purposes only. It should be understood that numerous alternatives and modifications are possible, such as, for example, that shown in FIGS. 18A-18B and FIGS. 19A-19D. As shown, a switch (e.g., 100G switch) 1630 is shown with a transceiver (e.g., 100G transceiver) 1631. The transceiver 1631 has a receptacle to receive duplex connectors 1632. From each of the two duplex connectors 1632, a four fiber cable 1633 extends to connect to various other connectors and transceivers. In some embodiments, as discussed herein, a clip (e.g., detachable clip) 1640 may connect two or more cables (e.g., 1633) to ensure the zip cables do not come apart. As shown, one four fiber cable 1633 is split into two two-fiber cables 1634, which are then each attached to a single simplex connector 1635 and placed into a transceiver (e.g., 25G transceiver) 1636. As further shown, one of the four fiber cables 1637 is connected to a single duplex connector 1638, which is then inserted into another transceiver (e.g., 50G transceiver) 1639.

[0129] An additional or alternative embodiment is shown in FIG. 17. As shown, one or more switches (e.g., 400G switches) 1730 and 1732 are shown each with a transceiver (e.g., 400G transceiver) 1731 and 1733. The first transceiver 1731 has a receptacle that is receiving two simplex (single) connectors 1734 and one duplex (dual) connector 1735. From each of the two simplex connectors

1734, a two fiber cable 1736 extends to connect to various other connectors and transceivers. Similar to FIGS. 14 and 16, some embodiments may have a clip (e.g., detachable clip) 1740 that may connect two or more cables (e.g., 1736, 1738, etc.) to ensure the zip cables do not come apart. From the duplex connector 1735 a four-fiber cable 1737 is split into two two-fiber cables 1738, which are then each attached to a single simplex connector each and placed into a transceiver (e.g., 400G transceiver).

[0130] Accordingly, embodiments described herein allow for improvements over the current state of the art. By way of specific example, connectors generally have three types of fixed cables. Moreover, some cables may be bifurcated. As such, the cable cannot be split once installed and the polarity of the cables cannot be changed. Alternatively, the embodiments discussed herein may allow a user to change from a four-way to a 2-Duplex, to a 4-simplex connector, etc. (e.g., FIG. 20). Moreover, as discussed herein, the individual connectors can be split into individual connectors anytime, even after deployment. Additionally, the polarity can be changed within the connectors easily in a manner that does not risk damage to the one or more ferrules and fibers, as discussed above. It should also be noted that the depicted connectors are used herein merely for illustrative purposes, and that various other connectors may be used in any embodiment (e.g., an MT connector, such as that shown in FIGS. 18A-18B, and the optical connectors of FIGS. 21, 37, and 41).

[0131] FIGS. 18A-18B depict an optical connector including an MT ferrule 1810 in a housing that is substantially similar to the housing 301 of FIG. 3. As with the embodiment of FIG. 3, the various features of the connector are configured such that two optical connectors having two MT-type optical ferrules may be accommodated in a small form-factor pluggable (SFP) transceiver footprint or at least four optical connectors having

a total of four MT-type optical ferrules may be accommodated in a quad small form-factor pluggable (QSFP) transceiver footprint.

[0132] FIGS. 19A-19D show alternative embodiments of the optical connectors of FIG. 3 in which the push-pull tabs are not integrated with the optical connector housing. As seen in FIGS. 19A-19B, a push-pull tab 1930 is a separable element from a connector housing. The push-pull tab 1930 actuates a latch 1910 for inserting and extracting the connector from an adapter or transceiver. An alternative latching mechanism is depicted in FIGS. 19C-19D. Latch 1950 includes a notch that is actuated by push-pull tab 1960.

[0133] FIG. 20 depicts the disassembly of a four-connector housing (two duplex connectors in a single housing) into two duplex connectors. This may be performed in changing, for example, a connector as shown in FIG. 14A to a connector as shown in FIG. 14C. In FIG. 20, an optical connector 2000 is depicted including a housing 2010 that houses two duplex connectors (four optical fibers). The housing 2010 is removed, leaving the two duplex connectors 2020. Two housings 2030 are then provided and two individual duplex connectors 2040 are then created from the initial single housing connector 2000. This reconfigurable housing simplifies cable management, for example, when optical cables are interconnected between lower-speed transceivers and higher-speed transceivers as seen in FIG. 16.

[0134] FIG. 21A depicts an embodiment of an optical connector 2100, shown in exploded view while 21B depicts the optical connector 2100 in an assembled view. Optical connector 2100 may include an outer housing 2110, a front body 2115, one or more ferrules 2122, one or more ferrule flanges 2124, one or more springs 2125, a back body 2130, a back post 2135, a crimp ring 2140, and a boot 2145. The outer housing 2110 may include a longitudinal bore for accommodating the front body 2115 and a

ferrule assembly 2120, a connector alignment key 2105 used during interconnection, a connector flap 2103 and an optional pull tab 2107 to facilitate removal of the connector 2100 when connected in a dense array of optical connectors. Optionally, the ferrules may be LC-type ferrules having an outer diameter of 1.25 mm.

[0135] In prior art optical connectors, an inner enclosed housing was used in place of open front body 2115. Front body 2115 includes top and bottom portions but no sidewalls, termed "open sidewalls" in this embodiment. By using front body 2115, space occupied by the prior art inner housing sidewalls becomes available to increase the density of optical connectors within a given footprint, an advantage over prior art connectors. It was determined that the outer housing 2110, combined with the front body 2115, provided sufficient mechanical strength and ferrule protection, advantageously providing the space for additional optical connectors. Removal of sidewalls increases available space by 1-2 millimeters.

[0136] Note that, in this embodiment, the outer housing is configured to hold two optical ferrules 2122. Typically, two optical ferrules may be used in a "transmit" and "receive" pairing of optical fibers, called a duplex connector. However, the outer housing may be configured to hold more or fewer optical ferrules including a single optical ferrule, multiples of single optical ferrules, or multiple pairs of optical ferrules, depending upon the application. Further, the front body 2115 may be removed from the outer housing 2110 and the front body placed in a larger outer housing with other front bodies to form a larger optical connector in a manner to be discussed in more detail below. In particular, two front bodies may be used with a four-ferrule outer housing or four front bodies may be used with an eight-ferrule outer housing.

[0137] Turning to FIGS. 29A and 29B, isometric and front views of the outer housing 2110 are shown. As seen in the front

view of FIG. 29B and the cross-sectional view of FIG. 29C, connector orientation protrusions 2910 are provided within the interior of the outer housing 2110. Connector protrusion 2910 is further seen in the inner view of the housing, FIG. 29E. When the front body is inserted within the longitudinal bore 2101 of outer housing 2110, the outer housing connector flap 2103 locks the outer housing 2110 to the front body 2115 in the following manner. As the front body 2115 is inserted into the outer housing 2110, the outer housing locking surface 2114, best seen in FIG. 27C, engages the connector orientation protrusion 2910, seen in an inside view of the outer housing in FIG. 29D, labelled as "Flap A", flexing the connector flap 2103 outwardly from the outer housing body 2110, depicted in the inset of FIG. 29C. The flap protrusion mating location is indicated as "mating place B" in FIG. 29D. Once the locking surface 2114 passes beyond the orientation protrusion, the connector flap returns to its original position (FIG. 29A), and the protrusion 2910 engages locking surface 2114 and any withdrawal of the front body assembly from the outer housing 2110 is prevented as the proximal end face of the connector flap 2103 is stopped by protrusion 2910.

[0138] FIGS. 35A-35C depict the sequence of operations to remove an assembled front body from the outer housing in order to reverse polarity or to aggregate plural connectors in a multi-connector housing. To separate the front body from the outer housing, the connector flap 2103 is flexed outward using a finger or a tool, as depicted in FIG. 35B. Flexing the connector flap 2103 outwardly causes the protrusion 2910 to disengage from the front body's outer housing locking surface 2114, permitting the front body/ferrule assembly 2115 to be removed from the outer housing. This may be performed when it is desired to reverse the polarity of the connector (to be discussed below) or when desiring to aggregate plural connectors into a larger connector housing as

discussed above. The separated components are depicted in FIG. 35C, that is, front body 2115 with the ferrule assembled therein and outer housing 2110.

[0139] In some embodiments, the back body 2130 may comprise one or more protrusions or hooks 2134, best seen in FIGS. 28A and 28B, which may interlock with a back body hook window/cutout 2119 in the front body 2115. This may allow for the back body 2130 and the front body 2115 to be securely fastened together around the ferrule(s) 2122, ferrule flange(s) 2124, and the spring(s) 2125. The back body 2130 includes a cable bore 2820, spring guides 2132, and side protrusions 2810.

[0140] During assembly, the ferrule flanges 2124 fit into ferrule flange alignment slots 2117 (see FIGS. 27A and 27B) adjacent the ferrule openings 2116 of the front body 2115, compressing the springs 2125 (preload) which are positioned along front body spring holders 2118. The ends of the springs 2125 are secured on spring guides 2132 (FIGS. 28A, 28B) of back body 2130 by spring tension. As seen in the assembled cross-sectional views of FIGS. 23A and 23B, the springs 2125 are positioned to urge the ferrules 2122 into contact with mating connectors or transceiver optics, ensuring minimum insertion loss. As further seen in FIGS. 27A and 27B, the front body includes a receptacle hook recess 2710 with a receptacle hook retainer surface 2720 the receiver a receptacle hook when mating with an adapter or with a transceiver receptacle, as shown in further detail below.

[0141] Further reductions in connector size may be obtained by reducing the size of springs 2125, see FIG. 21. By using a maximum spring outer diameter of 2.5 mm, the pitch of the ferrules, that is to say, the spacing between adjacent ferrules, may be reduced to 2.6 mm when coupled with the removal of inner housing walls and walls separating adjacent ferrules. This advantage is best seen in FIG. 22 which depicts the front of

connector 2100 showing overall connector dimensions and ferrule pitch. The connector size 4.2 x 8.96 x 30.85mm (excluding optional pull tab 2107 and connector alignment key 2105) with a ferrule pitch of 2.6 mm.

[0142] As best seen in FIG. 21B, the outer housing 2110 and the front body 2115 together provide a receptacle hook ramp 2940 (on the outer housing) used to guide a receptacle hook into a receptacle hook recess 2170 (in the front body 2115), also shown in FIGS. 27A and 27B (receptacle hook recess 2710 and receptacle hook retainer surface 2720). The receptacle hook, to be discussed in more detail below, may be from an adapter or a transceiver to secure the optical connector 2100 thereto.

[0143] The optical connectors 2100 may be used in a variety of connection environments. In some applications, the optical connectors 2100 will mate with other optical connectors. Typically, this mating will occur with a receptacle such as an adapter or optical transceiver receptacle. An exemplary adapter 2400 depicted in FIG. 24 in an exploded view and depicted in FIG. 31 having four mating pairs of optical connectors 2100 latched therein. In other applications, as when an optical signal is to be converted to an electrical signal, the micro optical connectors 2100 will mate with an optical receptacle in a transceiver 3600 as shown in FIG. 36. Typically, transceiver 3600 may be found in a data center, switching center, or any other location where optical signals are to be converted to electrical signals. Transceivers are often a part of another electrical device such as a switch or a server, as is known in the art. Although much of the connection operation of this embodiment will be described with respect to an adapter, 2400, it is understood that substantially similar mechanical retention mechanisms are positioned within the receptacle of transceiver 3600 so that any description of connector retention in adapter 2400 applies in a substantially similar way

to retention of an optical connector within transceiver 3600. An example of a transceiver optical receptacle is depicted in FIG. 36B (holding optical connectors 2100); as seen in FIG. 36B, the connection environment is substantially similar to one-half of an adapter 2400.

[0144] Turning to FIG. 24, further size reductions in the overall optical assembly of connectors plus adapter or connectors plus transceiver may be obtained through various connection mechanisms to be described with respect to the adapter 2400 but also apply to optical connection features within the front end of transceiver 3600. The adapter 2400 includes an adapter housing 2402 having an adapter alignment assembly 2430 positioned therein. The adapter alignment assembly 2430 includes alignment sleeves 2410 positioned within alignment sleeve openings 2440 of alignment sleeve holders 2442. The adapter alignment assembly further includes receptacle hooks 2302 that will grip optical connectors 2100 through front body connector hook recess 2710 of FIG. 21B. As seen in FIG. 30, receptacle hooks 2302 include an inner surface 3110. The adapter housing 2402 further includes connector alignment slots 2403 that mate with connector alignment key 2105 of FIG. 21A. The connectors 2100 are received through connector opening 2405 of the adapter housing 2402 which also includes flex tab 2401, cutout 2456, mount plate 2452 and panel hook 2490. To assemble the adapter alignment assembly 2430 in the adapter housing 2402, adapter housing hooks 2432 are provided. Adapter housing hooks 2432 are received in housing adapter hook openings.

[0145] It should be understood that above description of connection mechanisms with respect to adapter 2400 may be applied in a substantially similar way with respect to the receptacle of transceiver 3600. Particularly, the receptacle of transceiver 3600 may include a receptacle housing having a receptacle alignment assembly positioned therein. The receptacle alignment assembly

includes alignment sleeves positioned within alignment sleeve openings of alignment sleeve holders. The receptacle alignment assembly further includes receptacle hooks that will grip optical connectors 2100 through front body connector hook recess 2710 of FIG. 21B. As seen in FIG. 30, receptacle hooks 2302 include an inner surface 3110. The receptacle housing further includes connector alignment slots that mate with connector alignment key of FIG. 21A. The connectors 2100 are received through connector opening of the receptacle housing which also includes flex tab, cutout, mount plate and panel hook. To assemble the receptacle alignment assembly in the receptacle housing, receptacle housing hooks are provided. Receptacle housing hooks are received in housing receptacle hook openings.

[0146] To further reduce the size of optical connectors and associated mating components, the adapter housing 2402 includes receptacle hook openings 2420, seen in FIGS. 25A and 25B. Receptacle hook openings 2420 accommodate the clearance required by receptacle hooks 2302 when they flex upwards prior to latching with connectors 2100. The interaction of the receptacle hooks 2302, having slanted inner surfaces 3110, with the receptacle hook openings 2420 is best seen in FIGS. 32B and 34A-C. Prior to latching (FIG. 34A), the receptacle hook 2302 is in an unflexed condition within the receptacle (adapter or transceiver). As the connector 2100 is inserted into the adapter housing 2402 or the transceiver, the receptacle ramp 2490 pushes against the receptacle hook inner surfaces 3110, flexing receptacle hook 2302 into the receptacle hook opening 2420. Without providing the opening, additional clearance would need to be provided to accommodate the flexing of the receptacle hook 2302. This additional required clearance is depicted in the prior art connector/adapter of FIG. 32A. As seen in FIG. 32A, a connector latch gap 3210 must be provided in the prior art to accommodate

the prior art connector hooks, increasing the overall footprint of the prior art connector/adapter assembly. By providing receptacle hook openings 2420 in the present disclosure, approximately 2.25mm of valuable footprint real estate is obtained which may be used to increase connector density.

[0147] Another improvement in adapter size is obtained by removing prior art adapter walls between adjacent connectors. This is best seen in the front view of an assembled adapter 2400 shown in FIG. 26. As seen, pairs of ferrule alignment sleeves 2410 are separated only by connector gap 2610 with a 4.35 mm pitch between adjacent connectors. The adapter size is 19.0 x 10.71 x 32.5mm (excluding the adapter flange 2460). Also seen in FIG. 26 is the connector alignment slot 2403, alignment sleeve holder 2442, and a front view of receptacle hooks 2302.

[0148] FIG. 31 depicts an assembled adapter 2400 with four pairs of mating connectors 2100 latched therein. Note that in the latched position, receptacle hooks 2302 do not extend into receptacle hook openings 2420. This is further visible in the cross-sectional view of an assembled adapter 2400 of FIG. 25A. Connector alignment keys 2105 are positioned within connector alignment slots 2403. As seen in the cross-sectional view of FIG. 23A, the push-pull tab 2017 may extend beyond the connector boot 2145 providing clearance to easily grip the tab and remove a connector. Also seen in FIG. 31 is adapter flex tab 2401 and panel hook 2490 for interaction with racks or other equipment.

[0149] Through the various features described above, the density of optical connectors 2100 that may be provided in the standard transceiver footprint connector spaces may be doubled. For example, in a small form factor pluggable (SFP) footprint of 14 x 12.25 mm, two connectors 2100 having four LC-type ferrules 2122 of 1.25 mm outer diameter may be accommodated as seen in FIG. 33B. Similarly, in a quad small form factor pluggable (QSFP)

footprint of 13.5 x 19mm, four connectors 2100 having a total of eight LC-type ferrules 2122 may be accommodated as seen in FIG. 33A. Further, by providing the connectors in transmit and receive pairs, greater flexibility in optical routing is obtained, as demonstrated by previous FIGS. 16 and 17.

[0150] Turning to FIG. 37, another embodiment of an optical connector is depicted. In this embodiment, the last two digits of each element correspond to the similar elements in the optical connector of FIG. 21A et seq. In FIG. 37, connector 3700 may include an outer housing 3710, a front body 3715, one or more ferrules 3722, one or more ferrule flanges 3724, one or more springs 3725, a back body 3730, a back post 3735, a crimp ring 3740 (depicted with an optional heat shrink tube extending therefrom), and a boot 3745. The outer housing 3710 may include a longitudinal bore 3701 for accommodating the front body 3715 and ferrules 3722, a connector alignment key 3705 used during interconnection, a connector flap 3703 and an optional pull tab 3707 to facilitate removal of the connector 3700 when connected in a dense array of optical connectors. Optionally, the ferrules may be LC-type ferrules having an outer diameter of 1.25 mm.

[0151] In FIG. 38 an isometric view of the front body 3715 is depicted. In this embodiment, the back body hook cutout 3819 has been moved forward, advantageously strengthening the assembled connector in side load environments. An alignment tab 3895 is provided for mating with a receiving recess on the back body. The receptacle hook recess 3910 operates in a substantially similar manner to the recess of FIG. 21A, described above. A ferrule flange alignment slot 3817 is also provided.

[0152] In FIG. 39, the back body 3730 is depicted, showing alignment tab recess 3997 for receiving alignment tab 3895. The front body hook 3934, for interconnecting in back body hook cutout 3819, extends outwardly from the main portion of the back body

through extended hook arm 3996. Through the extended hook arm 3996 and the alignment tab 3895, breakage during side loads is reduced as the load is redistributed more evenly across the entire connector, reducing stress on the backpost.

[0153] As seen in FIGS. 40A-40C, the assembled front body 3715 may be removed from the outer housing 3710, rotated 180° as indicated by the arrow (FIG. 40B), and re-inserted into the outer housing (FIG. 40C). This allows for a change in the polarity of the front body 3715, and therefore the ferrules can switch quickly and easily without unnecessarily risking the delicate fiber cables and ferrules. As described previously with respect to FIGS. 35A-35C, connector flap 3703 is flexed outward to release the front body from the outer housing.

[0154] Turning to FIG. 41, another embodiment of an optical connector is depicted. In this embodiment, the last two digits of each element correspond to the similar elements in the micro optical connectors of FIG. 21A and FIG. 37. In FIG. 41, connector 4100 may include an outer housing 4110, a front body 4115, one or more ferrules 4122, one or more springs 4125, a back body 4130, a crimp ring 4140, and a boot 4145. The outer housing 4110 may include a connector flap 4103 and an optional pull tab 4107 to facilitate removal of the connector 4100 when connected in a dense array of optical connectors. Optionally, the ferrules may be LC-type ferrules having an outer diameter of 1.25 mm.

[0155] As seen in FIG. 42A, the front body 4015 in this embodiment includes a middle wall 4260 interposed between the ferrules and springs when the front body is assembled. This middle wall reduces the possibility of the springs becoming entangled with each other, binding the connector and breaking the optical fibers. The front body 4015 also includes an alignment cut out guide 4625, seen in the side view of FIG. 42B. The alignment cut out guides the back body 4030 into the front body 4015 during

assembly of the connecter, and also further reduces the side load that leads to connector breakage or disconnection of the front body and the back body 4030.

[0156] Back body 4030, depicted in an enlarged view in FIG. 43, includes an alignment guide 4377 that fits into the alignment cut out guide 4265 of FIG. 42B. The wall structure 4378 also stops the front body to prevent over-compressing the springs and provides strength under a side load.

[0157] Various modifications to the outer housing, depicted in FIGS. 44A-44C, may be used with any of the optical connectors depicted in FIGS. 21, 37, and 41 or earlier embodiments. In FIG. 44A, the push-pull tab 3707 may include a release recess 4473. Release recess 4473 permits insertion of a tool or fingernail to remove the connector from an adapter or transceiver, without disturbing adjacent connectors. Similarly, FIG 44B depicts a release hole 4499 in push-pull tab 3707 to permit insertion of an extraction tool to remove the connector from an adapter or transceiver. FIG. 44C shows a modified connector flap 3703 with an increased cutout size of 1 mm to make it easier to insert a tool or a finger to flex the flap 3703 and remove the front body assembly when making a polarity change or aggregating the front body with other front bodies in a larger outer housing.

[0158] Another embodiment of an adapter/transceiver receptacle is depicted in FIG. 45. Unlabeled elements are substantially similar to elements depicted in FIG. 24. In this FIG., adapter housing hooks 4532 can be seen along with receptacle hooks 4502. Turning to the cross-sectional view of the assembled adapter in FIG. 46, the engagement of these elements may be seen.

[0159] Another embodiment of an optical connector 4700 is depicted in FIG. 47. The optical connector of FIG. 47 includes outer housing 4710, front body 4715, ferrules 4722, springs 4725, back body 4730, backpost 4735, crimp ring 4740, and boot 4745.

Here, the emphasis is on the back body, 4730. A more detailed view of the back body 4730 is presented in FIG. 48. In this embodiment, the backpost flange has a substantially rectangular shape in order to narrow the overall connector profile by approximately 0.5 mm. Back post overmolding 4859 accommodates the back post flange 4857 and reduces the potential for back post breakage. The back wall 4853 is extended in length to 3 mm from 1.5 mm to improve the sideload strength of the overall connector. The crimp ring positioning 4855 is inversed from earlier embodiments to improve holding of aramid fiber from an optical fiber cable, improving cable retention of the back post.

[0160] Many advantages are achieved by the backpost of FIG. 48. In addition to increased connector strength, a longer fiber path 4901 is provided as shown in FIG. 49. This longer fiber path, approximately 1.5 mm longer than in previous embodiments, allows for a gentler curve as the fibers are split from the fiber optic cable, improving insertion and return loss of the fibers. In FIG. 49, the back wall 4853 can be seen as a portion of the back body 4730.

[0161] In view of the various modifications of this embodiment, FIG. 50 depicts a connector 4700 front view showing overall reduced connector width of 3.85 mm. Such a size reduction permits 4 optical connectors (a total of 8 ferrules) to be accommodated in a transceiver or connector footprint of 16mm (including tolerances). Thus, the connectors of the present invention may be used to connect 8 LC-ferrule-housed fibers in a QSFP footprint.

[0162] To further decrease the space required by the optical connectors, a side thickness reduction may be carried out on the boot of connector 4700. Side thickness reduction 5103, depicted in FIG. 51, narrows the thickness of the boot on either side, reducing the space required by the boot to the 3.85 mm

profile of connector 4700. Thus four connectors will fit in the QSFP transceiver footprint. This footprint is shown in the adapter front view of FIG. 52- as noted above, the front view of an adapter and that of a transceiver are substantially similar from the optical perspective. In FIG. 52, the adapter inner wall is reduced from 17.4 mm to 16 mm. All of the modifications set forth in the FIG. 47 et seq. embodiment make it possible for the four connectors to fit in the profile of FIG. 52.

[0163] In some embodiments, as shown in FIG. 53, a connector 10300 may comprise various components. Referring to FIG. 53, an illustrative embodiment of a connector 10300 is shown in an exploded view to display detail. In some embodiments, and as discussed further herein, a connector 10300 may have an outer housing 10301, a front body 10302, one or more ferrules 10303, one or more ferrule flanges 10304, one or more springs 10305, a back body 10306, a back post 10307, a crimp ring 10308, a boot 10309, and a push-pull tab 10310. In some embodiments, the back body 10306 may comprise one or more protrusions 10306.1 which may interlock with a window/cutout 10302.1 in the front body 10302. This may allow for the back body 10306 and the front body 10302 to be securely fastened together around the ferrule(s) 10303, ferrule flange(s) 10304, and the spring(s) 10305.

[0164] Referring now to FIG. 54, an embodiment is shown wherein the connector 10400 is assembled. In some embodiments, the assembled connector may have an outer housing 10401, a front body (not shown, see FIGs. 53 and 55.), one or more ferrules 10403, one

or more ferrule flanges (not shown), one or more springs (not shown), a back body 10406, a back post (not shown), a crimp ring (not shown), a boot 10409, a push-pull tab 10410, and one or more latching mechanisms made up of a window 10412 on the outer housing and a protrusion 10413 on the front body. The latching mechanism 10412 and 10413 securely attaches the outer housing 10401 to the front body. In a further embodiment, the push-pull tab 10410 may have an opening to receive a locking tab 10411. The locking tab 10411 of the outer housing 10401 is used to interlock with an adapter (not shown) to secure the connector into the adapter. As would be understood by one skilled in the art, the push-pull tab 10410 enables easy manipulation of the locking tab 10411 to allow for removal of the connector from the adapter without requiring additional tools.

[0165] As shown in FIG. 55, in some embodiments, the latching mechanism of the connector 10500 may be made up of two parts: a window 10512 and a protrusion 10513. As illustrated in FIG. 55, the outer housing 10501 can slide on to or be removed from the front body 10502 by disengaging the latching mechanisms formed by the protrusion 10513 exiting through the window 10512, whereby it contacts a side wall of the window (refer to FIG. 54 for an illustrated example of the outer housing being attached to the front body via the latching mechanism). In some embodiments,

the push-pull tab 10510 may also be detached from the outer housing 10501, as shown.

[0166] In a further embodiment, the front body 10502 may be removed from the outer housing 10501, rotated 180°, and re-inserted into the outer housing. This allows for a change in the polarity of the front body 10502, as shown by the arrow diagram in FIG. 55, and therefore the ferrules can switch quickly and easily without unnecessarily risking the delicate fiber cables and ferrules.

[0167] In some embodiments, it may be beneficial to connect two or more connectors together to increase structural integrity, reduce the overall footprint, and cut manufacturing costs. Accordingly, as shown in FIG. 56, a connector 10600 may in some embodiments, utilize an outer housing 10601 that is capable of holding two front bodies (not shown). Various other embodiments are disclosed herein, and it should be noted that the embodiments disclosed herein are all non-limiting examples shown for explanatory purposes only.

[0168] Accordingly, although the embodiment shown in FIG. 56 utilizes a duplex outer housing 10601, additional or alternative embodiments may exist with more capacity. As shown in FIG. 56, in some embodiments, the outer housing 10601 may accept two front bodies (not shown), each with two separate ferrules 10603. As shown, the front body (not shown) may securely fasten to the outer

housing 10601 via the latching mechanism 10612 and 10613. In additional embodiments, the push-pull tab 10610 may be modified, as shown, such that a single tab can be used to free the two or more connectors from an adapter. As illustrated in FIG. 56, the push-pull tab 10610 may include two openings with which to receive multiple locking tabs 10611 of the outer housing 10601. As discussed herein the locking tabs 10611 of the outer housing 10601 are used to secure the connectors to an adapter (not shown). In one or more further embodiments, the connectors may have individual back bodies 10606 and boots 10609 (i.e., one back body/boot per front body) as shown.

[0169] Alternatively, in some embodiments, such as that shown in FIG. 57, the connector 10700 may have a single boot 10709 and a duplex (i.e., uni-body) back body 10706 instead of individual back bodies (e.g., such as shown in FIG. 56). In some embodiments, the duplex back body 10706 may have different dimensions than that of the individual back bodies of FIG. 56, such as, for example, they may be longer to accommodate the need for routing the fiber after it exits the boot 10709. As with other embodiments discussed herein, the connector shown in FIG. 57 may also include an outer housing (e.g., duplex outer housing) 10701, one or more ferrules 10703, at least one latching mechanism formed by the protrusion 10713 exiting through the window 10712, and push-pull tab 10710.

[0170] As stated, it may be beneficial to connect two or more connectors together to increase structural integrity, reduce the overall footprint, and cut manufacturing costs. Accordingly, similarly to FIG. 56, FIG. 58 shows an connector 10800 that may, in some embodiments, utilize an outer housing 10801 that is capable of holding multiple (e.g., four) front bodies (not shown).

[0171] As shown in FIG. 58, some embodiments may have an outer housing 10801 able to accept up to four front bodies, each with one or more ferrules 10803. As shown, each front body (not shown) may securely fasten to the outer housing 10801 via the latching mechanism 10812 and 10813. In additional embodiments, the push-pull tab 10810 may be modified, as shown, such that a single tab can be used to free the up to four connectors from an adapter. As illustrated in FIG. 58, the push-pull tab 10810 may include four openings with which to receive multiple locking tabs 10811 of the outer housing 10801. As discussed herein the locking tabs 10811 of the outer housing 10801 are used to secure the connectors to an adapter (not shown). In one or more further embodiments, the connectors may have individual back bodies 10806 and boots 10809 (i.e., one back body/boot per front body) as shown.

[0172] Alternatively, in some embodiments, such as that shown in FIG. 59, the connector 10900 may utilize one or more duplex back bodies 10906 with a single boot 10909, similar to that shown in FIG. 57. Thus, similar to FIG. 57, the embodiment shown

in FIG. 59 may allow for a further reduced foot print, less cabling, and easier maintenance of the connector. Accordingly, one or more embodiments may have an outer housing 10901 may accept up to four front bodies, each with one or more ferrules 10903. As shown, each front body (not shown) may securely fasten to the outer housing 10901 via the latching mechanism 10912 and 10913. In additional embodiments, the push-pull tab 10910 may be modified, as shown, such that a single tab can be used to free the up to four front bodies from an adapter. As illustrated in FIG. 59, the push-pull tab 10910 may include four openings with which to receive multiple locking tabs 10911 of the outer housing 10901. As discussed herein the locking tabs 911 of the outer housing 10901 are used to secure the connectors to an adapter (not shown).

[0173] In further embodiments, such as that shown in FIG. 60, the connector 101000 may utilize a single uni-body back body 101006 with a single boot 101009. Thus, the embodiment shown in FIG. 59 may allow for a further reduced foot print, even less cabling, and easier maintenance of the connector. Accordingly, one or more embodiments may have an outer housing 101001 that may accept up to four front bodies, each with one or more ferrules 101003. As shown, each front body (not shown) may securely fasten to the outer housing 101001 via the latching mechanism 101012 and 101013. In additional embodiments, the push-pull tab 101010 may be modified, as shown, such that a single tab can be used to free up

to four connectors from an adapter. As illustrated in FIG. 60, the push-pull tab 101010 may include four openings with which to receive multiple locking tabs 101011 of the outer housing 101001. As discussed herein the locking tabs 101011 of the outer housing 101001 are used to secure the connectors to an adapter (not shown).

[0174] Referring now to FIG. 61, an embodiment 101100 is shown in which the connector (not shown in its entirety) is inserted into an adapter 101114. In this specific non-limiting example, the connector is similar to that shown in FIG. 58 (i.e., comprising four front bodies each with their own back body 101106 and boot 101109). However, unlike FIG. 58, the embodiment shown here utilizes four individual push-pull tabs 101110 instead of a single push-pull tab which manipulates four latching tabs to allow the connector to be removed from the adapter 101114.

[0175] Various benefits and details have been discussed herein with regard to the connectors and their modular ability (e.g., to include multiple connectors into a single unit). In addition to the reduced footprint, structural improvements, and cost reduction, various embodiments herein may also be beneficial with regard to reducing the burden of cabling in a data center environment. Illustrative embodiments shown in FIGs. 62A through 62C depict cable configurations that can be used to reduce the complexity of optical cables in a compact environment. FIG. 62A shows two duplex cables similar to the cable shown in FIG. 56.

This allows for two or more cables to be bundled and reduce the risk of entanglement with additional cables. FIG. 62B is an illustrative example, of how easily an embodiment can separate into two individual connectors by unbinding the cables and thus quickly and easily creating two independent fiber optic channels that can move independently. FIG. 62C shows an embodiment in which a duplex connector like that of FIGs. 56 and 62A is connected to two separate individual connectors.

[0176] In addition to binding existing fiber cables, some embodiments herein may utilize a new four fiber zip cable. Referring now to FIG. 63A, a conventional zip cable (i.e., one with a single fiber strand 101320 per jacket 101321) is shown in comparison with an embodiment where two fibers 101322 per jacket 101323 may be utilized. It should be understood that this is merely a non-limiting example. In some embodiments, multiple fibers may be included per jacket, such as, for example, four fibers per jacket in order to utilize the single boot 101009 and uni-body read body 101006 of the connector shown in FIG. 60.

[0177] A specific example using multi-strand cables is shown in FIG. 64 for illustrative purposes only. It should be understood that numerous alternatives and modifications are possible, such as, for example, that shown in FIG. 66A-66B, FIGs. 67A-67D, and 68A-68B. As shown, a switch (e.g., 100G switch) 101430 is shown with a transceiver (e.g., 100G transceiver) 101431. The

transceiver 101431 has an adapter to receive two mini duplex connectors 101432. From each of the two duplex connectors 1432, a four fiber cable 101433 extends to connect to various other connectors and transceivers. As shown, one four fiber cable 101433 is split into two two-fiber cables 101434, which are then attached to a single simplex connector 101435 and placed into a transceiver (e.g., 25G transceiver) 101436. As further shown, one of the four fiber cables 101437 is connected to a single mini duplex connector 101438, which is then inserted into another transceiver (e.g., 50G transceiver) 101439.

[0178] Accordingly, embodiments described herein allow for improvements over the current state of the art. By way of specific example, ROX connectors generally have three types of fixed cables: ROX 1, ROX 2, and ROX 4. Moreover, ROX cables are bifurcated. As such, the cable cannot be split once installed and the polarity of the cables cannot be changed. Alternatively, the embodiments discussed herein may allow a user to change from a four way to a 2-Duplex, to a 4-simplex connector, etc. (e.g., FIG. 69). Moreover, as discussed herein, the individual connectors can be split into individual connectors anytime, even after deployment. Additionally, as discussed herein, the polarity can be changed within the connectors in an easy manner that does not risk damage to the one or more ferrules. It should also be noted, as discussed herein that connectors are used herein merely for simplicity

purposes, and that various other connectors may be used in any embodiment (e.g., an MT connector, such as that shown in FIG. 66A-66B).

[0179] In the above detailed description, reference is made to the accompanying drawings, which form a part hereof. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be used, and other changes may be made, without departing from the spirit or scope of the subject matter presented herein. It will be readily understood that the aspects of the present disclosure, as generally described herein, and illustrated in the Figures, can be arranged, substituted, combined, separated, and designed in a wide variety of different configurations, all of which are explicitly contemplated herein.

[0180] The present disclosure is not to be limited in terms of the particular embodiments described in this application, which are intended as illustrations of various aspects. Many modifications and variations can be made without departing from its spirit and scope, as will be apparent to those skilled in the art. Functionally equivalent methods and apparatuses within the scope of the disclosure, in addition to those enumerated herein, will be apparent to those skilled in the art from the foregoing descriptions. Such modifications and variations are intended to fall within the scope of the appended claims. The present disclosure is to be limited only by the terms of the appended claims, along with the full scope of equivalents to which such claims are entitled. It is to be understood that this disclosure is not limited to particular methods, reagents, compounds, compositions or biological systems, which can, of course, vary. It

is also to be understood that the terminology used herein is for the purpose of describing particular embodiments only, and is not intended to be limiting.

[0181] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0182] It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (for example, bodies of the appended claims) are generally intended as "open" terms (for example, the term "including" should be interpreted as "including but not limited to," the term "having" should be interpreted as "having at least," the term "includes" should be interpreted as "includes but is not limited to," et cetera). While various compositions, methods, and devices are described in terms of "comprising" various components or steps (interpreted as meaning "including, but not limited to"), the compositions, methods, and devices can also "consist essentially of" or "consist of" the various components and steps, and such terminology should be interpreted as defining essentially closed-member groups. It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases "at least one" and "one or more" to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles "a" or "an" limits any particular claim containing such introduced

claim recitation to embodiments containing only one such recitation, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an" (for example, “a” and/or “an” should be interpreted to mean “at least one” or “one or more”); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should be interpreted to mean at least the recited number (for example, the bare recitation of "two recitations," without other modifiers, means at least two recitations, or two or more recitations). Furthermore, in those instances where a convention analogous to “at least one of A, B, and C, et cetera” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (for example, “ a system having at least one of A, B, and C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, et cetera). In those instances where a convention analogous to “at least one of A, B, or C, et cetera” is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (for example, “ a system having at least one of A, B, or C” would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, et cetera). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities of including one of the terms, either of the terms, or both terms.

For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B."

[0183] In addition, where features or aspects of the disclosure are described in terms of Markush groups, those skilled in the art will recognize that the disclosure is also thereby described in terms of any individual member or subgroup of members of the Markush group.

[0184] As will be understood by one skilled in the art, for any and all purposes, such as in terms of providing a written description, all ranges disclosed herein also encompass any and all possible subranges and combinations of subranges thereof. Any listed range can be easily recognized as sufficiently describing and enabling the same range being broken down into at least equal halves, thirds, quarters, fifths, tenths, et cetera As a non-limiting example, each range discussed herein can be readily broken down into a lower third, middle third and upper third, et cetera As will also be understood by one skilled in the art all language such as "up to," "at least," and the like include the number recited and refer to ranges which can be subsequently broken down into subranges as discussed above. Finally, as will be understood by one skilled in the art, a range includes each individual member. Thus, for example, a group having 1-3 cells refers to groups having 1, 2, or 3 cells. Similarly, a group having 1-5 cells refers to groups having 1, 2, 3, 4, or 5 cells, and so forth.

[0185] Various of the above-disclosed and other features and functions, or alternatives thereof, may be combined into many other different systems or applications. Various presently unforeseen or unanticipated alternatives, modifications, variations or improvements therein may be subsequently made by those skilled in the art, each of which is also intended to be encompassed by the disclosed embodiments.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Kazuyoshi Takano Date (Optional) :_____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Jimmy Jun-Fu CHANG Date (Optional) :_____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
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Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

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City	Tokyo
State/Province	
Postal Code	101-0024
Country	JP

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
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Residence Information (Select One) ● US Residency ◯ Non US Residency Active US Military Service

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State/Province	MA
Postal Code	01607
Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	152878		
Email Address	PATENTS@SENKO.COM	Add Email	Remove Email
Email Address	stl.uspatents@stinson.com	Add Email	Remove Email

Application Information:

Title of the Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING		
Attorney Docket Number	S09100US61	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	65	**Suggested Figure for Publication (if any)**	52

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Customer Number	152878

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17327197	2021-05-21
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
17327197	Continuation of	17090855	2020-11-05
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17090855	Continuation of	16414546	2019-05-16	10859778	2020-12-08

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16414546	Claims benefit of provisional	16388053	2019-04-18
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16388053	Continuation of	16035691	2018-07-15	10281668	2019-05-07

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62588276	2017-11-17
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62549655	2017-08-24

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62532710	2017-07-14

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Senko Advanced Components, Inc.		
Mailing Address Information For Applicant:			
Address 1	450 Donald Lynch Blvd, Unit D		
Address 2			
City	Marlborough	**State/Province**	MA
Country	US	Postal Code	01752
Phone Number	5084819999	Fax Number	5084817676
Email Address	patents@senko.com		

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Senko Advanced Components, Inc.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	450 Donald Lynch Blvd, Unit D		
Address 2			
City	Marlborough	**State/Province**	MA
Country i	US	Postal Code	01752
Phone Number	508-481-9999	Fax Number	508-481-7676
Email Address	patents@senko.com		

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jonathan Pollmann/			Date (YYYY-MM-DD)	2021-07-08
First Name	Jonathan	Last Name	Pollmann	Registration Number	71,702

Additional Signature may be generated within this form by selecting the Add button. Add

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61

CONFIRMATION NO. 1025

IMPROPER CFR REQUEST

152878
Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

OC000000127210239

Date Mailed: 07/26/2021

RESPONSE TO REQUEST FOR CORRECTED FILING RECEIPT

Continuity, Priority Claims, Petitions, and Non-Publication Requests

In response to your request for a corrected Filing Receipt, the Office is unable to comply with your request because:

- One or more of the benefit claims under 35 U.S.C. § 120 cannot be included on the Filing Receipt since applicant did not specify whether the application is a continuation, divisional or continuation-in-part of the prior application. Applicant must submit a new application data sheet (ADS) that sets forth the relationship, and the ADS must be accompanied by a petition under 37 CFR 1.78 if filed after the time period set forth in 37 CFR 1.78.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/smaliem/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor Kazuyoshi TAKANO Art Unit TBD
Application No. 17/370,057
Filed July 8, 2021
Confirmation No. 1025
For: ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

July 30, 2021

SUPPLEMENTAL APPLICATION DATA SHEET

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

COMMISSIONER:

Applicant files herewith a Supplemental Application Data Sheet (ADS) providing corrected information. The original ADS filed July 8, 2021 identifies U.S. Application No. 16/414546 as claims the benefit of provisional of U.S. Application No. 16/388053. The Supplemental ADS identifies U.S. Application No. 16/414546 as a continuation of U.S. Application No. 16/388053. In accordance with 37 CFR §1.76(c)(2), all other sections of the Supplemental ADS include the information that was presented in the original ADS filed July 8, 2021.

The Commissioner is hereby authorized to charge any deficiency or credit any overpayment of any required fee related to this filing to Deposit Account No. 19-4409.

Respectfully submitted,

/Jonathan Pollmann/

Jonathan Pollmann, Reg. No. 71,702
STINSON LLP
7700 Forsyth Boulevard, Suite 1100
St. Louis, Missouri 63105
(314) 345-7056

Electronic Acknowledgement Receipt

EFS ID:	43392264
Application Number:	17370057
International Application Number:	
Confirmation Number:	1025
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi TAKANO
Customer Number:	152878
Filer:	Jonathan G. Pollmann/Meagan Fitzpatrick
Filer Authorized By:	Jonathan G. Pollmann
Attorney Docket Number:	S09100US61
Receipt Date:	30-JUL-2021
Filing Date:	
Time Stamp:	15:48:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	SuppADS.PDF	1503406 8299233d7952109c0952c4558ba1a571390 66ec8	no	9

Warnings:

Information:					
This is not an USPTO supplied ADS fillable form					
2	Transmittal Letter	LTPTO.pdf	124292 d1c9e5c71ab91a59c088da9b5e5c2431e74000de	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	1627698	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kazuyoshi		TAKANO	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Country of Residence	
Tokyo		JP

Mailing Address of Inventor:

Address 1	3F Konko Building, 1-1-16 Kanda, Izumi-cho
Address 2	Chiyoda-ku
City	Tokyo
State/Province	
Postal Code	101-0024
Country	JP

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jimmy	Jun-Fu	CHANG	

Residence Information (Select One) ● US Residency ◯ Non US Residency Active US Military Service

City	State/Province	Country of Residence
Worcester	MA	US

Mailing Address of Inventor:

Address 1	62 Upland Street
Address 2	
City	Worcester
State/Province	MA
Postal Code	01607
Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	152878		
Email Address	PATENTS@SENKO.COM	Add Email	Remove Email
Email Address	stl.uspatents@stinson.com	Add Email	Remove Email

Application Information:

Title of the Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING		
Attorney Docket Number	S09100US61	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	65	**Suggested Figure for Publication (if any)**	52

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Customer Number	152878

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17327197	2021-05-21
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
17327197	Continuation of	17090855	2020-11-05
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17090855	Continuation of	16414546	2019-05-16	10859778	2020-12-08

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16414546	Claims benefit of provisional Continuation	16388053	2019-04-18
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16388053	Continuation of	16035691	2018-07-15	10281668	2019-05-07

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62588276	2017-11-17
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62549655	2017-08-24

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62532710	2017-07-14

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Senko Advanced Components, Inc.		
Mailing Address Information For Applicant:			
Address 1	450 Donald Lynch Blvd, Unit D		
Address 2			
City	Marlborough	**State/Province**	MA
Country	US	Postal Code	01752
Phone Number	5084819999	Fax Number	5084817676
Email Address	patents@senko.com		

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Senko Advanced Components, Inc.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	450 Donald Lynch Blvd, Unit D		
Address 2			
City	Marlborough	**State/Province**	MA
Country i	US	Postal Code	01752
Phone Number	508-481-9999	Fax Number	508-481-7676
Email Address	patents@senko.com		

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jonathan Pollmann/			Date (YYYY-MM-DD)	2021-07-30
First Name	Jonathan	Last Name	Pollmann	Registration Number	71,702

Additional Signature may be generated within this form by selecting the Add button. Add

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/370,057

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	80		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	350		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	400		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	30 minus 20 =	* 10	x 50 =	500	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*	x 240 =	0.00			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	1330		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/370,057	07/08/2021	2883	1330	S09100US61	30	2

CONFIRMATION NO. 1025

FILING RECEIPT

152878
Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

OC000000128025836

Date Mailed: 08/27/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Kazuyoshi TAKANO, Tokyo, JAPAN;
Jimmy Jun-Fu CHANG, Worcester, MA;

Applicant(s)

Senko Advanced Components, Inc., Marlborough, MA;

Assignment For Published Patent Application

Senko Advanced Components, Inc., Marlborough, MA

Power of Attorney: The patent practitioners associated with Customer Number 152878

Domestic Priority data as claimed by applicant

This application is a CON of 17/327,197 05/21/2021
which is a CON of 17/090,855 11/05/2020
which is a CON of 16/414,546 05/16/2019 PAT 10859778

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/26/2021
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/370,057**
Projected Publication Date: 12/02/2021
Non-Publication Request: No
Early Publication Request: No
**** SMALL ENTITY ****
Title

ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Preliminary Class

385

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific

countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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Document Code:WFEE

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Sale Accounting Date:10/18/2021

Sale Item Reference Number	Effective Date
17370057	07/14/2021

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I20210H937392608	2830	PROCESSING FEE, EXCEPT PROV. APPLS.	$70.00	Deposit Account

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

152878 7590 10/19/2021

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

EXAMINER	
CENTRAL, DOCKET	

ART UNIT	PAPER NUMBER
OPAP	

NOTIFICATION DATE	DELIVERY MODE
10/19/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
patents@senko.com
stl.uspatents@stinson.com

Decision Granting Request for Prioritized Examination (Track I)	**Application No.** 17/370,057	**Applicant(s)** TAKANO et al.	
	Examiner KIMBERLY A INABINET	**Art Unit** OPET	**AIA (FITF) Status** Yes

1. THE REQUEST FILED 08 July 2021 IS **GRANTED** .

   The above-identified application has met the requirements for prioritized examination
   - A. ☑ for an original nonprovisional application (Track I).
   - B. ☐ for an application undergoing continued examination (RCE).

2. **The above-identified application will undergo prioritized examination**. The application will be accorded special status throughout its entire course of prosecution until one of the following occurs:
   - A. filing a **petition for extension of time** to extend the time period for filing a reply;
   - B. filing an **amendment to amend the application to contain more than four independent claims, more than thirty total claims** , or a multiple dependent claim;
   - C. filing a **request for continued examination** ;
   - D. filing a notice of appeal;
   - E. filing a request for suspension of action;
   - F. mailing of a notice of allowance;
   - G. mailing of a final Office action;
   - H. completion of examination as defined in 37 CFR 41.102; or
   - I. abandonment of the application.

Telephone inquiries with regard to this decision should be directed to KIMBERLY INABINET at (571) 272-4618. In his/her absence, calls may be directed to Petition Help Desk at (571) 272-3282.

/KIMBERLY A INABINET/ Paralegal Specialist, OPET	

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	OPAP
Examiner Name	CENTRAL DOCKET
Attorney Docket Number	S09100US61

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	1	CN106997078	CN		2017-08-01			

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NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17370057
	Filing Date	2021-07-08
	First Named Inventor	Kazuyoshi TAKANO
	Art Unit	OPAP
	Examiner Name	CENTRAL DOCKET
	Attorney Docket Number	S09100US61

	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	OPAP
Examiner Name	CENTRAL DOCKET
Attorney Docket Number	S09100US61

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Qi Zhang/	Date (YYYY-MM-DD)	2021-10-29
Name/Print	Qi Zhang	Registration Number	L1394

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44156677
Application Number:	17370057
International Application Number:	
Confirmation Number:	1025
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi TAKANO
Customer Number:	152878
Filer:	Qi Zhang /Kristin Corbett
Filer Authorized By:	Qi Zhang
Attorney Docket Number:	S09100US61
Receipt Date:	29-OCT-2021
Filing Date:	08-JUL-2021
Time Stamp:	11:28:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS.pdf	1034287 28d7f0f7d98b53a391d52bbf665a5194e00c3c3f	no	4

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Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	3721945		1973-03-20	Hults	
	2	5026138		1991-06-25	Boudreau	
	3	5602951		1997-02-11	Shiota	
	4	5845036		1998-12-01	De Marchi	
	5	5915987		1999-06-29	Reed	
	6	6276840		2001-08-21	Weiss	
	7	6379052		2002-04-30	de Jong	
	8	6422759		2002-07-23	Kevern	

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	9	6485194		2002-11-26	Shirakawa	
	10	6530696		2003-03-11	Ueda	
	11	6565262		2003-05-20	Childers	
	12	6585194		2003-07-01	Brushwood	
	13	6634796		2003-10-21	de Jong	
	14	6668113		2003-12-23	Togami	
	15	6811321		2004-11-02	Schmalzigaug et al.	
	16	6869227		2005-03-22	Del Grosso	
	17	7036993		2006-05-02	Luther	
	18	7052186		2006-05-30	Bates	
	19	7077576		2006-07-18	Luther	

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	20	7264402		2007-09-04	Theuerkorn	
	21	7473124		2009-01-06	Briant	
	22	7540666		2009-06-02	Luther	
	23	7588373		2009-09-15	Sato	
	24	8152385		2012-04-10	de Jong	
	25	8221007		2012-07-17	Peterhans	
	26	8534928		2013-09-17	Cooke	
	27	8556645		2013-10-15	Crain	
	28	8559781		2013-10-15	Childers	
	29	8622634		2014-01-07	Arnold	
	30	8676022		2014-03-18	Jones	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	31	8678670		2014-03-25	Takahashi	
	32	8727638		2014-05-20	Lee	
	33	9052474		2015-06-09	Jiang	
	34	9310569		2016-04-12	Lee	
	35	9366829		2016-06-14	Czosnowski	
	36	9465172		2016-10-11	Shih	
	37	9557495		2017-01-31	Raven et al.	
	38	9658409		2017-05-23	Gniadek	
	39	9684313		2017-06-20	Chajec	
	40	9778425		2017-10-03	Nguyen	
	41	9829644		2017-11-28	Nguyen	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	42	9829645		2017-11-28	Good	
	43	9880361		2018-01-30	Childers	
	44	9946035		2018-04-17	Gustafson	
	45	9971103		2018-05-15	de Jong et al.	
	46	10031296		2018-07-24	Good	
	47	4979792		1990-12-25	Weber	
	48	5011025		1991-08-20	Haitmanek	
	49	5265181		1991-11-23	Chang	
	50	5289554		1994-02-22	Cubukciyan et al.	
	51	5335301		1994-08-02	Newman et al.	
	52	5521997		1996-05-28	Rovenolt et al.	

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	53	4150790		1979-04-24	Potter	
	54	4327964		1982-05-04	Haesley et al.	
	55	4478473		1984-10-23	Frear	
	56	4762388		1988-08-09	Tanaka et al.	
	57	4764129		1988-08-16	Jones et al.	
	58	4840451		1989-06-20	Sampson et al.	
	59	4872736		1989-10-10	Myers et al.	
	60	5212752		1993-05-18	Stephenson et al.	
	61	5265181		1993-11-23	Chang	
	62	5317663		1994-05-31	Beard et al.	
	63	5348487		1994-09-20	Marazzi et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	64	5444806		1995-08-22	de Marchi et al.	
	65	5481634		1996-04-09	Anderson et al.	
	66	5570445		1996-10-29	Chou et al.	
	67	5588079		1996-12-24	Tanabe et al.	
	68	5684903		1997-11-04	Kyomasu et al.	
	69	5687268		1997-11-11	Stephenson et al.	
	70	5781681		1998-07-14	Manning	
	71	5937130		1999-08-10	Amberg et al.	
	72	5956444		1999-09-21	Duda et al.	
	73	5971626		1999-10-26	Knodell et al.	
	74	6041155		2000-03-21	Anderson et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	75	6049040		2000-04-11	Biles et al.	
	76	6134370		2000-10-17	Childers et al.	
	77	6178283	B1	2001-01-23	Weigel	
	78	6206577	B1	2001-03-27	Hall, III et al.	
	79	6206581	B2	2001-03-27	Driscoll et al.	
	80	6227717	B1	2001-05-08	Ott et al.	
	81	6238104	B1	2001-05-29	Yamakawa et al.	
	82	6247849	B1	2001-06-19	Liu	
	83	6364537	B1	2002-04-02	Maynard	
	84	6461054	B1	2002-10-08	Iwase	
	85	6471412	B1	2002-10-29	Belenkiy et al.	

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	86	6478472	B1	2002-11-12	Anderson et al.	
	87	6551117	B2	2003-04-22	Poplawski et al.	
	88	6579014	B2	2003-06-17	Melton et al.	
	89	6648520	B2	2003-11-18	McDonald et al.	
	90	6682228	B2	2004-01-27	Ralhnam et al.	
	91	6685362	B2	2004-02-03	Burkholder et al.	
	92	6695486	B1	2004-02-24	Falkenberg	
	93	6854894	B1	2005-02-15	Yunker et al.	
	94	6872039	B2	2005-03-29	Baus et al.	
	95	6935789	B2	2005-08-30	Gross, III et al.	
	96	7090407	B2	2006-08-15	Melton et al.	

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	97	7091421	B2	2006-08-15	Kukita et al.	
	98	7111990	B2	2006-09-26	Melton et al.	
	99	7113679	B2	2006-09-26	Melton et al.	
	100	7150567	B1	2006-12-19	Luther et al.	
	101	7153041	B2	2006-12-26	Mine et al.	
	102	7198409	B2	2007-04-03	Smith et al.	
	103	7207724	B2	2007-04-24	Gurreri	
	104	7258493	B2	2007-08-21	Milette	
	105	7281859	B2	2007-10-16	Mudd et al.	
	106	7315682	B1	2008-01-10	En Lin et al.	
	107	7325976	B2	2008-02-05	Gurreri et al.	

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	108	7325980	B2	2008-02-05	Pepe	
	109	7329137	B2	2008-02-12	Martin et al.	
	110	7331718	B2	2008-05-19	Yazaki et al.	
	111	7354291	B2	2008-04-08	Caveney et al.	
	112	7371082	B2	2008-05-13	Zimmell et al.	
	113	7387447	B2	2008-06-17	Mudd et al.	
	114	7390203	B2	2008-06-24	Murano et al.	
	115	7431604	B2	2008-10-07	Waters et al.	
	116	7463803	B2	2008-12-09	Cody et al.	
	117	7465180	B2	2008-12-16	Kusuda et al.	
	118	7510335	B1	2009-03-31	Su et al.	

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	119	7513695	B1	2009-04-07	Lin et al.	
	120	7561775	B2	2009-07-14	Lin et al.	
	121	7591595	B2	2009-09-22	Lue et al.	
	122	7594766	B1	2009-09-29	Sasser et al.	
	123	7641398	B2	2010-01-05	O'Riorden et al.	
	124	7695199	B2	2010-04-13	Teo et al.	
	125	7699533	B2	2010-04-20	Milette	
	126	7824113	B2	2010-11-02	Wong et al.	
	127	7837395	B2	2010-11-23	Lin et al.	
	128	8186890	B2	2012-05-29	Lu	
	129	8192091	B2	2012-06-05	Hsu et al.	

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	130	8202009	B2	2012-06-19	Lin et al.	
	131	8251733	B2	2012-08-28	Wu	
	132	8267595	B2	2012-09-18	Lin et al.	
	133	8270796	B2	2012-09-18	Nhep	
	134	8408815	B2	2013-04-02	Lin et al.	
	135	8465317	B2	2013-06-18	Gniadek et al.	
	136	8636424	B1	2014-01-28	Kuffel et al.	
	137	8651749	B2	2014-02-18	Clovis et al.	
	138	8770863	B1	2014-07-08	Cooke et al.	
	139	9411110	B2	2016-08-09	Barnette, Jr., et al.	
	140	9494744	B2	2016-11-15	de Jong	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	141	9548557	B2	2017-01-17	Liu	
	142	9551842	B2	2017-01-24	Theuerkorn	
	143	9568686	B2	2017-02-14	Fewkes et al.	
	144	9581768	B2	2017-02-28	Baca et al.	
	145	9599778	B2	2017-03-21	Wong et al.	
	146	9684136	B2	2017-06-20	Cline et al.	
	147	9709753	B2	2017-08-18	Chang et al.	
	148	9869825	B2	2018-01-16	Bailey et al.	
	149	5506922		1996-04-09	Grois et al.	
	150	6634801	B1	2003-10-21	Waldron et al.	
	151	8083450	B1	2011-12-27	Smith et al.	

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	152	D323143	S	1992-01-14	Ohkura et al.	
	153	D533504	S	2006-12-12	Lee	
	154	D534124	S	2006-12-26	Taguchi	
	155	D543146	S	2007-05-22	Chen et al.	
	156	D558675	S	2008-01-01	Chien et al.	
	157	D572661	S	2008-07-08	En Lin et al.	
	158	D641708	S	2011-07-29	Tammauchi	
	159	RE37080	E	2001-03-06	Stephenson et al.	
	160	6250817	B1	2001-06-26	Lampert et al.	
	161	7712970	B1	2010-05-11	Lee	
	162	9250402	B2	2016-02-02	Ishii et al.	

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	163	9448370	B2	2016-09-20	Xue et al.	
	164	9684130	B2	2017-06-20	Veatch et al.	
	165	10107972	B1	2018-10-23	Gniadek et al.	
	166	5031981		1991-07-16	Peterson	
	167	5146813		1992-09-15	Stanfill, Jr.	
	168	5321784		1994-06-14	Cubukciyan et al.	
	169	6817272	B2	2004-11-16	Holland	
	170	8869661	B2	2014-10-28	Opstad	
	171	9678283	B1	2017-06-13	Chang et al.	
	172	5073045		1991-12-17	Abendschein	
	173	7534128	B2	2009-05-19	Caveney et al.	

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	174	9989711	B2	2018-06-05	Ott et al.	
	175	10146011	B2	2018-12-04	Nhep	
	176	10281668	B2	2019-05-07	Takano et al.	
	177	10281669	B2	2019-05-07	Takano et al.	

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	1	20020191919	A1	2002-12-19	Nolan	
	2	20020168148	A1	2002-11-14	Gilliland	
	3	20030063862	A1	2003-04-03	Fillion	
	4	20040052473	A1	2004-03-18	Seo	
	5	20040109646	A1	2004-06-10	Anderson	

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	6	20040247252	A1	2004-12-09	Ehrenreich	
	7	20060013539	A1	2006-01-19	Thaler	
	8	20070025665	A1	2007-02-01	Dean	
	9	20090176401	A1	2009-07-09	Gu	
	10	20090290938	A1	2009-11-26	Asaoka	
	11	20100092136	A1	2010-04-15	Nhep	
	12	20100284656	A1	2010-11-11	Morra	
	13	20110155810	A1	2011-06-30	Taniguichi	
	14	20110239220	A1	2011-09-29	Gibson	
	15	20120237177	A1	2012-09-20	Minota	
	16	20130019423	A1	2013-01-24	Srutkowski	

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	17	20130170797	A1	2013-07-04	Ott	
	18	20130216185	A1	2013-08-22	Klavuhn	
	19	20130308915	A1	2013-11-21	Buff	
	20	20140056562	A1	2014-02-27	Limbert	
	21	20140241644	A1	2014-08-28	Kang	
	22	20150003788	A1	2015-01-01	Chen	
	23	20150111417	A1	2015-04-23	Vanderwoud	
	24	20150241644	A1	2015-08-27	Lee	
	25	20160139343	A1	2016-05-19	Dean, Jr., et al.	
	26	20160349458	A1	2016-12-01	Murray	
	27	20160370545	A1	2016-12-22	Jiang	

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	28	20180156988	A1	2018-06-07	Gniadek	
	29	20180172923	A1	2018-06-21	Bauco	
	30	20020172467	A1	2002-11-21	Anderson et al.	
	31	20030053787	A1	2003-03-20	Lee	
	32	20030157825	A1	2003-08-21	Kane	
	33	20040161958	A1	2004-06-19	Togami et al.	
	34	20040136657	A1	2004-07-15	Ngo	
	35	20040141693	A1	2004-07-22	Szilagvi et al.	
	36	20040234209	A1	2004-11-26	Cox et al.	
	37	20050111796	A1	2005-05-26	Matasek et al.	
	38	20050141817	A1	2005-06-30	Yazaki et al.	

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	39	20060089049	A1	2006-04-27	Sedor	
	40	20060127025	A1	2006-06-15	Haberman	
	41	20060160429	A1	2006-07-20	Dawiedczyk et al.	
	42	20060269194	A1	2006-11-30	Luther et al.	
	43	20060274411	A1	2006-12-07	Yamauchi	
	44	20070028409	A1	2007-02-08	Yamada	
	45	20070079854	A1	2007-04-12	You	
	46	20070098329	A1	2007-06-03	Shimoji et al.	
	47	20070149062	A1	2007-06-28	Long et al.	
	48	20070230874	A1	2007-10-04	Lin	
	49	20070232115	A1	2007-10-04	Burke et al.	

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	50	20070243749	A1	2007-10-18	Wu	
	51	20080008430	A1	2008-01-10	Kewitsch	
	52	20080044137	A1	2008-02-21	Luther et al.	
	53	20080069501	A1	2008-03-20	Mudd et al.	
	54	20080101757	A1	2008-05-01	Lin et al.	
	55	20080226237	A1	2008-09-18	O'Rioreden et al.	
	56	20080267566	A1	2008-10-30	En Lin	
	57	20090222457	A1	2009-01-22	de Jong et al.	
	58	20090028507	A1	2009-01-29	Jones et al.	
	59	20090196555	A1	2009-08-06	Lin et al.	
	60	20090214162	A1	2009-08-27	O'Riorden et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	61	20090220197	A1	2009-09-03	Gniadek	
	62	20100034502	A1	2010-02-11	Lu et al.	
	63	20100247041	A1	2010-09-30	Szilagyi	
	64	20100322561	A1	2010-12-23	Lin et al.	
	65	20110044588	A1	2011-02-24	Larson et al.	
	66	20110131801	A1	2011-06-09	Nelson et al.	
	67	20110177710	A1	2011-07-21	Tobey	
	68	20120099822	A1	2012-04-26	Kuffel et al.	
	69	20120155810	A1	2012-06-21	Nakagawa	
	70	20120189260	A1	2012-07-26	Kowalczyk et al.	
	71	20120269485	A1	2012-10-25	Haley et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Kazuyoshi TAKANO
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	Examiner Name	TBD
	Attorney Docket Number	S09100US61

	72	20120301080	A1	2012-11-29	Gniadek	
	73	20130071067	A1	2013-03-21	Lin	
	74	20130089995	A1	2013-04-11	Gniadek et al.	
	75	20130094816	A1	2013-04-18	Lin et al.	
	76	20130121653	A1	2013-05-16	Shitama et al.	
	77	20130183012	A1	2013-07-18	Lopez et al.	
	78	20130259429	A1	2013-10-03	Czosnowski et al.	
	79	20130322825	A1	2013-12-05	Cooke et al.	
	80	20140016901	A1	2014-01-16	Lamboum et al.	
	81	20140023322	A1	2014-01-23	Gniadek	
	82	20140050446	A1	2014-02-20	Chang	

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	83	20140133808	A1	2014-05-14	Hill et al.	
	84	20140334780	A1	2014-11-13	Nguyen et al.	
	85	20140348477	A1	2014-11-27	Chang	
	86	20150378113	A1	2015-12-31	Good et al.	
	87	20160259135	A1	2016-09-08	Gniadek et al.	
	88	20090092360	A1	2009-04-09	Lin et al.	
	89	20090220200	A1	2009-09-03	Wong et al.	
	90	20090290839	A1	2009-11-26	En Lin	
	91	20100322561	A1	2010-12-23	Lin et al.	
	92	20140219621	A1	2014-08-07	Barnette, Jr., et al.	
	93	20140241688	A1	2014-08-08	Isenhour et al.	

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	94	20140226946	A1	2014-08-14	Cooke et al.	
	95	20140241678	A1	2014-08-28	Bringuier et al.	
	96	20150212282	A1	2015-07-30	Lin	
	97	20150301294	A1	2015-10-22	Chang et al.	
	98	20150331201	A1	2015-11-19	Takano et al.	
	99	20150355417	A1	2015-12-10	Takano et al.	
	100	20160131849	A1	2016-05-12	Takano et al.	
	101	20160291262	A1	2016-06-10	Chang et al.	
	102	20160195682	A1	2016-06-23	Takano	
	103	20160195682	A1	2016-07-07	Takano et al.	
	104	20160266326	A1	2016-09-15	Gniadek	

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	105	20170003458	A1	2017-01-05	Gniadek	
	106	20080056647	A1	2008-03-06	Margolin et al.	
	107	20090047818	A1	2009-02-19	Irwin et al.	
	108	20150370021	A1	2015-12-24	Chan	
	109	20170343740	A1	2017-11-30	Nguyen	
	110	20070149028	A1	2007-06-01	Yu et al.	
	111	20100220961	A1	2010-09-02	de Jong et al.	
	112	20140169727	A1	2014-06-19	Veatch et al.	
	113	20160231512	A1	2016-08-11	Seki	
	114	20170254961	A1	2017-09-07	Kamada et al.	
	115	20170276275	A1	2017-09-28	Beemer et al.	

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	116	20190204513	A1	2019-07-04	Davidson et al.	
	117	20050036744	A1	2005-02-17	Caveney et al.	
	118	20160161681	A1	2016-06-09	Banal, Jr., et al.	
	119	20170205587	A1	2017-07-20	Chang et al.	
	120	20170205591	A1	2017-07-20	Takano et al.	
	121	20190064447	A1	2019-02-28	Chang et al.	
	122	20170277059	A1	2017-09-28	Miura et al.	

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FOREIGN PATENT DOCUMENTS Remove

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	1	2495693	CA	A1	2004-04-08	Corning Cable Systems LLC		
	2	2836038	CN	Y	2006-11-08	Chen ye		×

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	3	201383588	CN	Y	2010-01-13	Xi An Xikang Technology Co., Ltd.		☒
	4	2026500189	CN	U	2013-12-05	Tyco Electronics (Shanghai) Co., Ltd. et al.		☒
	5	202006011910	DE	U1	2007-03-22	Weidmueller Interface GmbH & Co., KG		☐
	6	102006019335	DE	U1	2007-10-25	Telegaetner Geraetebau GmbH		☒
	7	1074868	EP	A1	2001-07-02	Yazaki Corporation		☐
	8	1211537	EP	A2	2002-06-05	Lucent Technologies, Inc.		☐
	9	1245980	EP	A1	2002-10-02	Corning Cable Systems LLC		☐
	10	1566674	EP	A2	2005-08-24	Riechle & De Massan		☒
	11	2111240	GB	A	1983-06-29	Allied Corp.		☐
	12	2009229545	JP	A	2009-10-08	Sanwa Denki Kogyo Co., Ltd.		☒
	13	2009276493	JP	A	2009-11-25	Sanwa Denki Kogyo Co., Ltd.		☒

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	14	200821653	TW	A	2008-05-16	SENKO Advanced Component		☐
	15	200179904	WO	A2	2001-10-25	Krone GmbH		☒
	16	2004027485	WO	A1	2004-04-01	Van Der Steen et al.		☐
	17	2008112986	WO	A1	2008-09-18	SENKO Advanced Components		☐
	18	2009135787	WO	A1	2009-11-12	Huber & Suhner AG		☒
	19	2010024851	WO	A2	2010-03-04	Corning Cable Systems LLC		☐
	20	2012136702	WO	A1	2012-10-11	FCI		☐
	21	2012162385	WO	A1	2012-11-29	SENKO Advanced Components		☐
	22	2014028527	WO	A1	2014-02-20	SENKO Advanced Components		☐
	23	2014182351	WO	A1	2014-11-13	SENKO Advanced Components		☐
	24	2015191024	WO	A1	2015-12-17	SENKO Advanced Components		☐

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	25	2016148741	WO	A1	2016-09-22	SENKO Advanced Components		☐
	26	2016019993	WO	A1	2016-02-11	Prysmian Spa		☐

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	1	International Search Report and Written Opinion; Application Number PCT/US2018/042202, dated December 7, 2018, pages 17.	
	2	International Search Report and Written Opinion, Application Number PCT/US2019/013861, dated April 8, 2019, pages 15.	
	3	Fiber Optic Connectors Tutorial, 2018, pages 20.	
	4	Fiber Optic Glossary, February 29, 2016, pages 93.	
	5	"Fiber Optic Interconnect Solutions, Tactical Fiber Optical Connectors, Cables and Termini" 2006, Glenair, Inc., Glendale, California, www.mps-electronics.de, pages 232.	
	6	"Fiber Optic Products Catalog" November 2007, Tyco Electronics Corporation, Harrisburg, Pennsylvania, www. ampnetconnect.com, pages 204.	
	7	"Fiber Optic Connectors and Assemblies Catalog" 2009, Huber & Suhner Fiver Optics, Herisau, Switzerland, www. hubersuhner.com, pages 104.	

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan Pollmann/	Date (YYYY-MM-DD)	2021-11-01
Name/Print	Jonathan Pollmann	Registration Number	71,702

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	APPLICANT Kazuyoshi TAKANO	
	FILING DATE 2021-07-08	GROUP ART UNIT **2883**

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US4240695A	1980-12-23	Evans, Robert F.	
		US5041025A	1991-08-20	Haitmanek, Louis F.	
		US5101463A	1992-03-31	Cubukciyan, Nuran	
		US5159652A	1992-10-27	Grassin D'Alphonse, Emmanuel	
		US5315679A	1994-05-24	Baldwin, Clark F.	
		US5418875A	1995-05-23	Nakano, Toshiaki	
		US5862282A	1999-01-19	Matsuura, Ichiro	
		US5930426A	1999-07-27	Harting, Dietmar	
		US5953473A	1999-09-14	Shimotsu, Akihiro	
		US6095862A	2000-08-01	Doye, Dennis Lee	
		US6240228B1	2001-05-29	Chen, Wenzong	
		US6250817B1	2001-06-26	Lampert, Norman Roger	
		US6318903B1	2001-11-20	Andrews, Scott R.	
		US6450695B1	2002-09-17	Matsumoto, Tateomo	
		US6527450B1	2003-03-04	Miyachi, Akihiro	
		US6572276B1	2003-06-03	Theis, Hans	
		US7717625B2	2010-05-18	Margolin, Mark	
		US8414196B2	2013-04-09	Lu, Yu	
		US8550728B2	2013-10-08	Takahashi, Shigeo	
		US8757894B2	2014-06-24	Katoh, Seiji	
		US8764308B2	2014-07-01	Irwin, Phillip J.	
		US9063296B2	2015-06-23	Dong, Min	
		US9557495B2	2017-01-31	Raven, Asher	
		US9829653B1	2017-11-28	Nishiguchi, Yuki	
		US10067301B2	2018-09-04	Murray, David Patrick	
		US10114180B2	2018-10-30	Suzic, Dusko	
		US20040136657A1	2004-07-15	Ngo, Hung, Viet	
		US20060076061A1	2006-04-13	Bush, Shawn	
		US20060153503A1	2006-07-13	Suzuki, Toshio	
		US20060193562A1	2006-08-31	Theuerkorn, Thomas	
		US20080064334A1	2008-03-13	Hamadi, Charles, Jamile	
		US20100054668A1	2010-03-04	Nelson, Keith	
		US20100061069A1	2010-03-11	Cole, Christopher R.	

FORM PTO-1449 (Modified) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. **S09100US61**	SERIAL NO. **17/370,057**
	APPLICANT Kazuyoshi TAKANO	
	FILING DATE 2021-07-08	GROUP ART UNIT **2883**

		US20110044588A1	2011-02-24	Larson, Donald K.	
		US20110058773A1	2011-03-10	Peterhans, Adrian	
		US20120308183A1	2012-12-06	Irwin, Phillip J.	
		US20120328248A1	2012-12-27	Larson, Donald K.	
		US20130101258A1	2013-04-25	Hikosaka, Tomohiro	
		US20140056562A1	2014-02-27	Limbert, Mark John	
		US20140241644A1	2014-08-28	KANG, Byong Min	
		US20140334780A1	2014-11-13	NGUYEN, Anh Ngoc	
		US20140348477A1	2014-11-27	CHANG, Jimmy Jun-Fu	
		US20150003788A1	2015-01-01	Chen, Wenzong	
		US20150177463A1	2015-06-25	LEE, JHIH-PING	
		US20150198766A1	2015-07-16	TAKAHASHI, Shigeo	
		US20150241644A1	2015-08-27	LEE, WEI-CHENG	
		US20150301294A1	2015-10-22	CHANG, Jimmy Jun-Fu	
		US20160172852A1	2016-06-16	TAMURA, MASAYA	
		US20160259135A1	2016-09-08	GNIADEK, Jeffrey	
		US20160266326A1	2016-09-15	GNIADEK, Jeffrey	
		US20160320572A1	2016-11-03	Gniadek, Jeffrey	
		US20170205590A1	2017-07-20	BAILEY, William	
		US20170212313A1	2017-07-27	ELENABAAS, Jacob Arie	
		US20170212316A1	2017-07-27	TAKANO, Kazuyoshi	
		US20170276887A1	2017-09-28	Allen, Barry Wayne	
		US20180128988A1	2018-05-10	CHANG, Jimmy Jun-Fu	
		US20180252872A1	2018-09-06	Chen, Szu Ming	
		US20180341069A1	2018-11-29	Takano, Kazuyoshi	
		US681132A	1901-08-20	NORTON EDWIN	
		US20160178852A1	2016-06-23	Takano, Kazuyoshi	

FORM PTO-1449 (Modified) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. **S09100US61**	SERIAL NO. **17/370,057**
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FOREIGN PATENT DOCUMENTS

	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		CN2836038Y	2006-11-08	CHEN, Ye	
		CN201383588Y	2010-01-13	TIAN, Fang-ku	
		DE19507669A1	1996-09-12	Schroeder, Wolfgang, Dipl.-Ing.	
		EP1211537A3	2002-06-12	Lampert, Norman R.	
		JP2000089059A	2000-03-31	SATO SADATAKA	
		JP0375233182	2006-03-08		
		JP04377820B2	2009-12-02		
		KR2009005382A	2009-01-13	KIM, Jin-Ki	
		KR200905382U	2009-06-03	KWON, Oh Joon	
		KR1371686B1	2014-03-07	MOON, GAE TAE	
		WO2001079904A2	2001-10-25	KAHLE, Eberhard	
		WO2006007120A1	2006-01-19	COX, Larry, R.	
		WO2015103783A1	2015-07-16	MURRAY, David Patrick	
		WO2019126333A1	2019-06-27	HIGLEY, Jason	
		CA2495693A1	2004-04-08	DEL GROSSO, STEVE C.	
		EP1074868A1	2001-02-07	Shirakawa, Tsuguhito	
		WO2012162385A1	2012-11-29	GNIADEK, Jeffrey	

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	Cite No.	Author, Title, Date, Pertinent Pages, Etc
		PCT/US2018/062406 International Search Report dated Mar. 18, 2019.
		PCT/US2018/062406 The written Opinion dated Mar. 18, 2019.
		PCT/US2018/062405 International Search Report dated Apr. 3, 2019.
		PCT/US2018/062405 The written Opinion dated Apr. 3, 2019.
		PCT/IB2018/056133 Written Opinion dated Jan. 3, 2019.
		PCY/IB/056133 Search Report dated Jan. 3, 2019.
		Final Office Action, U.S. Appl. No. 16/035,691, dated Feb. 11, 2019, pp. 8.

FORM PTO-1449 (Modified) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. **S09100US61**	SERIAL NO. **17/370,057**
	APPLICANT Kazuyoshi TAKANO	
	FILING DATE 2021-07-08	GROUP ART UNIT **2883**

		Non-Final Office Action, U.S. Appl. No. 16/035,695, dated Sep. 28, 2018, pp. 7.
		International Search Report and Written Opinion, Application No. PCT/US/2018/042202, pp. 17, dated Dec. 7, 2018.
		International Search Report and Written Opinion, Application No. PCT/US19/24718, dated Jun. 26, 2019, pp. 7.
		ISR for PCT/US2019/013861, Apr. 8, 2019, 3 pages.
		WO for PCT/US2019/013861, Apr. 8, 2019, 11 pages.
		International Search Report and Written Opinion for Application No. PCT/US2018/62406 dated Mar. 18, 2019, 12, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/40700 dated Sep. 27, 2019, 12, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/50895 dated Jan. 6, 2020, 12, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/50909 dated Dec. 17, 2019, 11, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/56564 dated Jan. 14, 2020, 14, pages, United States.
		International Search Report and Written Opinion, Application No. PCT/US19/46397, dated Nov. 12, 2019, pp. 6.
		International Search Report; PCT/US2018/042202 filed Jul. 16, 2018; Applicant: Senko Advanced Components, Inc.
		PCT/IB2018/056133 Written Opinion dated Jan. 3, 2019.
		PCY/IB/056133 Search Report dated Jan. 3, 2019.
		International Preliminary Report on Patentability for PCT/US2019/022940 dated October 1, 2020, 11 pages.
		Extended European Search Report and Written Opinion, Application No. 18832246.5, March 15, 2021, Pages 6.

EXAMINER	DATE CONSIDERED
EXAMINER: Initial if reference considered whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance *and* not considered. Include copy of this form with next communication to applicant.	

Information Disclosure Statement-PTO-1449 (Modified)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of: Kazuyoshi TAKANO Art Unit: 2883
Serial No.: 17/370057
Filed: July 8, 2021
Confirmation No.: 1025
For: ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
Examiner: TBD

November 1, 2021

INFORMATION DISCLOSURE STATEMENT

TO THE DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE,

SIR:

In accordance with 37 C.F.R. 1.97 and 1.98 and MPEP 609, and in compliance with the duty of disclosure set forth in 37 C.F.R. 1.56, applicants submit the attached PTO/SB/08A for consideration by the Patent and Trademark Office in the above-entitled application and to be made of record therein.

All of the rest of the references listed on the attached PTO/SB/08A have been previously submitted in parent applications Serial Nos. 16/194,325, 16/103,555, 16/035,691,16/559,590, 17/090,855, 17/376,977, 17/375,739, 17/476,816, and therefore, in accordance with MPEP 609, are not being provided at this time.

Respectfully submitted,

/Jonathan Pollmann/

Jonathan G. Pollmann, Reg. No. 71,702
STINSON LLP
7700 Forsyth Boulevard, Suite 1100
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JGP/mkf

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7347634	B2	2008-03-25	Gunther et al.	
	2	7261472	B2	2007-08-28	Suzuki et al.	
	3	7284912	B2	2007-10-23	Suzuki et al.	
	4	7717625	B2	2010-05-18	Margolin et al.	
	5	7261472	B2	2007-08-28	Suzuki et al.	
	6	9250399	B2	2016-02-02	Margolin et al.	

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17370057
	Filing Date	2021-07-08
	First Named Inventor	Kazuyoshi TAKANO
	Art Unit	2883
	Examiner Name	TBD
	Attorney Docket Number	S09100US61

	1	20080056647	A1	2008-03-06	Margolin et al.	
	2	20050135755	A1	2005-06-23	Kiani et al.	
	3	20080013896	A1	2008-01-17	Salzberg et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2012053375	JP	A	2012-03-15	Sanwa Denki Kogyo Co. Ltd.		
	2	2011027876	JP	A	2011-02-10	Sanwa Denki Kogyo Co. Ltd.		
	3	20040028409	KR	A	2006-04-11	Katie Co., Ltd; Hirose Korea Co., Ltd.		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17370057
	Filing Date	2021-07-08
	First Named Inventor	Kazuyoshi TAKANO
	Art Unit	2883
	Examiner Name	TBD
	Attorney Docket Number	S09100US61

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan Pollmann/	Date (YYYY-MM-DD)	2021-11-01
Name/Print	Jonathan Pollmann	Registration Number	71702

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	44175161
Application Number:	17370057
International Application Number:	
Confirmation Number:	1025
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi TAKANO
Customer Number:	152878
Filer:	Jonathan G. Pollmann/Meagan Fitzpatrick
Filer Authorized By:	Jonathan G. Pollmann
Attorney Docket Number:	S09100US61
Receipt Date:	01-NOV-2021
Filing Date:	08-JUL-2021
Time Stamp:	17:11:38
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	IDS.PDF	1042843 210b28f1627933ed46f99d6c999b9192bb3a694d	no	34

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	IDS2.pdf	213848 ab53fa3a0286ae99e9e0c865d242624921fafe51	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Letter specifying the conditions for filing under 37CFR1.97	LTPTO.pdf	85627 e73d184246329c6822a0c3862560aea8e43f138c	no	1
Warnings:					
Information:					
4	Information Disclosure Statement (IDS) Form (SB08)	IDS3.PDF	1034891 4403d6284623182f632d49a31b5f1982a667127f	no	5
Warnings:					
Information:					
5	Foreign Reference	JP2011027876A1.pdf	2466197 28b1ccf3c94f006b0f73c52c1096ec52a442a99c	no	15
Warnings:					
Information:					
6	Foreign Reference	JP2012053375A1.pdf	3048853 0a55e85699e84893845a5a083de88f49f8630eae	no	17
Warnings:					
Information:					
7	Foreign Reference	KR20040028409A1.pdf	3770374 346002279b3e913a0355faf92167eed16838b61e3	no	21
Warnings:					
Information:					
			Total Files Size (in bytes):	11662633	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

152878 7590 11/05/2021

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

EXAMINER	
WONG, TINA MEI SENG	

ART UNIT	PAPER NUMBER
2874	

NOTIFICATION DATE	DELIVERY MODE
11/05/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
patents@senko.com
stl.uspatents@stinson.com

Office Action Summary	Application No. 17/370,057	Applicant(s) TAKANO et al.	
	Examiner TINA M WONG	Art Unit 2874	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-30 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 1,5-11,14,16-18 and 22-28 is/are rejected.

8) ☑ Claim(s) 2-4,12-13,15,19-21 and 29-30 is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 08 July 2021 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Claim Rejections - 35 USC § 102

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

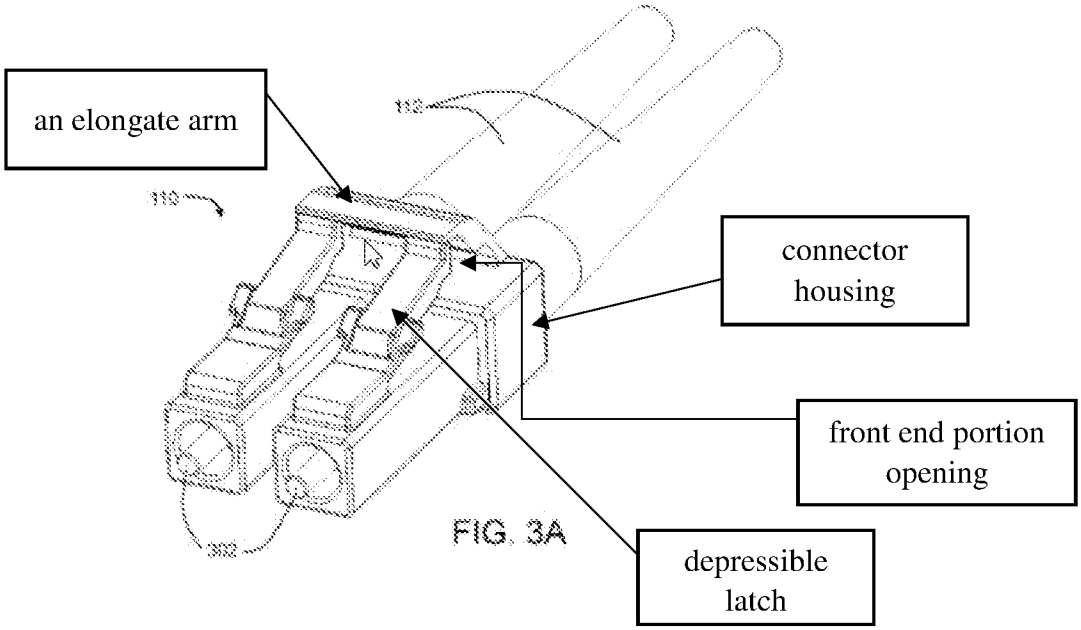
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public before the effective filing date of the claimed invention.

Claim(s) 1, 5-11, 14, 18 and 22-28 is/are rejected under 35 U.S.C. 102(a)(1) as being anticipated by U.S. Patent Application Publication 2017/0343740 to Nguyen.

In regards to claims 1 and 18, Nguyen teaches an optical fiber connector (Figures 3A, 3B, 4A and 4B) comprising first and second optical fiber ferrules (302)/multi-fiber ferrule (fiber 412), a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules/multi-fiber ferrule such that the first and second optical fiber ferrules/multi-fiber ferrule are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules/multi-fiber ferrule are spaced

apart from one another along the transverse axis, a depressible latch above the top portion of the connector housing and an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch. (See Figure 3A below)



In regards to claims 5 and 22, Nguyen teaches the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis. See annotated Figure 3A

In regards to claims 6 and 23, Nguyen teaches the front end portion defines an opening. See annotated Figure 3A

In regards to claims 7 and 24, Nguyen teaches the depressible latch is received in the opening. See annotated Figure 3A

In regards to claims 8 and 25, Nguyen teaches the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion. See annotated Figure 3A

In regards to claims 9 and 26, Nguyen teaches the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis. See annotated Figure 3A

In regards to claims 10 and 27, Nguyen teaches the front end portion of the elongate arm includes an edge defining a front end of the opening. See annotated Figure 3A

In regards to claims 11 and 28, Nguyen teaches the depressible latch arm has an upper surface, the edge opposing the upper surface.

In regards to claim 14, Nguyen teaches the connector housing includes a front body and a back body.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 16 and 17 is/are rejected under 35 U.S.C. 103 as being unpatentable over U.S. Patent Application Publication 2017/0343740 to Nguyen.

In regards to claims 16 and 17, although Nguyen does not expressly teach a single cable boot extending rearward from the back body/connector housing, the addition of a boot for the purpose of providing support and bend relief is common in optical connector devices. Therefore, it would have been obvious before the effective filing date to a person having ordinary skill in the art to have provided a single boot extending rearward from the back body/connector housing.

Allowable Subject Matter

Claims 2-4, 12, 13, 15, 19-21, 29 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In regards to claims 2-4 and 19-21, the prior art of record fails to disclose or reasonably suggest the connector housing comprises a guide connecting the elongate arm to the optical fiber connector in addition to the accompanying features of the independent claim and any intervening claims.

In regards to claims 12 and 29, the prior art of record fails to disclose or reasonably suggest the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch in addition to the accompanying features of the independent claim and any intervening claims.

In regards to claims 13 and 30, the prior art of record fails to disclose or reasonably suggest a push/pull tab extending from the rear end portion of the elongate arm in addition to the accompanying features of the independent claim and any intervening claims.

In regards to claim 15, the prior art of record fails to disclose or reasonably suggest the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body in addition to the accompanying features of the independent claim and any intervening claims.

Prior Art

The information disclosure statements received have been placed in the application file, and the information referred to therein has been considered as to the merits. See the attached forms PTO-1449.

The submission of voluminous documents in the instant information disclosure statements, including numerous documents that do not appear to relate to the claimed limitations, make it difficult, and likely impossible, for the Patent Office to fairly assess applicants' application against the prevailing statutory criteria.

The numerous references and materials listed on the submitted **47** sheets of the IDS's make it difficult to determine whether or not any of the references, or parts of the references, are material to applicants' claimed invention. It is noted that applicants, in their several IDS submissions, do not indicate any particular reference or parts of references which they deem "material" to the patentability of the pending claims under 37 CFR 1.56(b).

Applicants are reminded of the standard set forth in the leading inequitable conduct case of J.P. Stevens & Co. v. Lex Tex Ltd., 747 F.2d 1553, 223 USPQ 1089 (Nov. 9, 1984), cert. denied, 106 S.Ct. 73 (1985): Where none of the prior art cited during prosecution teaches a key element of the claim(s) and where a reference known to the applicants does, the applicants should know that reference is material. Thus, if applicants are aware of any cited reference from among the information disclosure(s) of **the 47 sheets** that are "material," applicants should make that reference known to the examiner.

It is also noted that a "misrepresentation is material if it makes it impossible for the Patent Office fairly to assess [the patent] application against the prevailing statutory criteria." In re Multidistrict-Litig. Involving Forst Patent, 540 F.2d 601, 604, 191 USPQ 241, 243 (3d Cir.

1976); see also Monsanto Co. v. Rohm & Haas Co., 456 F.2d 592, 600, 172 USPQ 323, 329 (3d Cir.), ce.rt. denied, 40'7 U.S. 934, 174 USPQ 129 (1972). And, the submission of voluminous documents in the instant information disclosure statements (here, in excess of **47 sheets of** documents) make it difficult, and likely impossible, for the Patent Office to fairly assess applicants' application against the prevailing statutory criteria.

It is desirable to avoid the submission of long lists of documents if it can be avoided. Eliminate clearly irrelevant and marginally pertinent cumulative information. If a long list is submitted, highlight those documents which have been specifically brought to applicant's attention and/or are known to be of most significance. See Penn Van Boats, Inc. v. Sea Lark Boats, Inc., 359 F. Supp. 948, 175 USPQ 260 (S.D. Fla. 1972), affc/, 479 F.2d 1338, 178 USPQ 577 (5th Cir. 1973), cert, denied, 414 U.S. 874 (1974). But of. Moiins PLC v. Textron Inc., 48 F.3d 1172, 33 USPG2d 1823 (Fed. Cir. 1995). (See MPEP 2004 13).

Inventorship

This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TINA M WONG whose telephone number is (571)272-2352. The examiner can normally be reached M-F 8:30-5:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le can be reached on (571) 272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TINA M WONG/
Primary Examiner, Art Unit 2874

Notice of References Cited	Application/Control No. 17/370,057	Applicant(s)/Patent Under Reexamination TAKANO et al.	
	Examiner TINA M WONG	Art Unit 2874	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20170343740-A1	11-2017	Nguyen; Long Van	G02B6/4246	1/1
*	B	US-20130322825-A1	12-2013	Cooke; Terry L.	G02B6/3831	385/59
*	C	US-10859778-B2	12-2020	Takano; Kazuyoshi	G02B6/4292	1/1
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/370,057	TAKANO et al.
	Examiner	Art Unit
	TINA M WONG	2874

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
PE2E Searched, Related searches (16/414,546 & 17/327,197) Updated	11/02/2021	tmw

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	3721945		1973-03-20	Hults	
	2	5026138		1991-06-25	Boudreau	
	3	5602951		1997-02-11	Shiota	
	4	5845036		1998-12-01	De Marchi	
	5	5915987		1999-06-29	Reed	
	6	6276840		2001-08-21	Weiss	
	7	6379052		2002-04-30	de Jong	
	8	6422759		2002-07-23	Kevern	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Examiner Name	TBD
	Attorney Docket Number	S09100US61

	9	6485194		2002-11-26	Shirakawa	
	10	6530696		2003-03-11	Ueda	
	11	6565262		2003-05-20	Childers	
	12	6585194		2003-07-01	Brushwood	
	13	6634796		2003-10-21	de Jong	
	14	6668113		2003-12-23	Togami	
	15	6811321		2004-11-02	Schmalzigaug et al.	
	16	6869227		2005-03-22	Del Grosso	
	17	7036993		2006-05-02	Luther	
	18	7052186		2006-05-30	Bates	
	19	7077576		2006-07-18	Luther	

ALL REFERENCES CONSIDERED EXCEPT 1023 WHERE LINED THROUGH. /T.M.W./

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	Attorney Docket Number	S09100US61

	20	7264402		2007-09-04	Theuerkorn	
	21	7473124		2009-01-06	Briant	
	22	7540666		2009-06-02	Luther	
	23	7588373		2009-09-15	Sato	
	24	8152385		2012-04-10	de Jong	
	25	8221007		2012-07-17	Peterhans	
	26	8534928		2013-09-17	Cooke	
	27	8556645		2013-10-15	Crain	
	28	8559781		2013-10-15	Childers	
	29	8622634		2014-01-07	Arnold	
	30	8676022		2014-03-18	Jones	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	31	8678670		2014-03-25	Takahashi	
	32	8727638		2014-05-20	Lee	
	33	9052474		2015-06-09	Jiang	
	34	9310569		2016-04-12	Lee	
	35	9366829		2016-06-14	Czosnowski	
	36	9465172		2016-10-11	Shih	
	37	9557495		2017-01-31	Raven et al.	
	38	9658409		2017-05-23	Gniadek	
	39	9684313		2017-06-20	Chajec	
	40	9778425		2017-10-03	Nguyen	
	41	9829644		2017-11-28	Nguyen	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	42	9829645		2017-11-28	Good	
	43	9880361		2018-01-30	Childers	
	44	9946035		2018-04-17	Gustafson	
	45	9971103		2018-05-15	de Jong et al.	
	46	10031296		2018-07-24	Good	
	47	4979792		1990-12-25	Weber	
	48	5011025		1991-08-20	Haitmanek	
	49	5265181		1991-11-23	Chang	
	50	5289554		1994-02-22	Cubukciyan et al.	
	51	5335301		1994-08-02	Newman et al.	
	52	5521997		1996-05-28	Rovenolt et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	53	4150790		1979-04-24	Potter	
	54	4327964		1982-05-04	Haesley et al.	
	55	4478473		1984-10-23	Frear	
	56	4762388		1988-08-09	Tanaka et al.	
	57	4764129		1988-08-16	Jones et al.	
	58	4840451		1989-06-20	Sampson et al.	
	59	4872736		1989-10-10	Myers et al.	
	60	5212752		1993-05-18	Stephenson et al.	
	61	5265181		1993-11-23	Chang	
	62	5317663		1994-05-31	Beard et al.	
	63	5348487		1994-09-20	Marazzi et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	64	5444806		1995-08-22	de Marchi et al.	
	65	5481634		1996-04-09	Anderson et al.	
	66	5570445		1996-10-29	Chou et al.	
	67	5588079		1996-12-24	Tanabe et al.	
	68	5684903		1997-11-04	Kyomasu et al.	
	69	5687268		1997-11-11	Stephenson et al.	
	70	5781681		1998-07-14	Manning	
	71	5937130		1999-08-10	Amberg et al.	
	72	5956444		1999-09-21	Duda et al.	
	73	5971626		1999-10-26	Knodell et al.	
	74	6041155		2000-03-21	Anderson et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	Attorney Docket Number	S09100US61

	75	6049040		2000-04-11	Biles et al.	
	76	6134370		2000-10-17	Childers et al.	
	77	6178283	B1	2001-01-23	Weigel	
	78	6206577	B1	2001-03-27	Hall, III et al.	
	79	6206581	B2	2001-03-27	Driscoll et al.	
	80	6227717	B1	2001-05-08	Ott et al.	
	81	6238104	B1	2001-05-29	Yamakawa et al.	
	82	6247849	B1	2001-06-19	Liu	
	83	6364537	B1	2002-04-02	Maynard	
	84	6461054	B1	2002-10-08	Iwase	
	85	6471412	B1	2002-10-29	Belenkiy et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	86	6478472	B1	2002-11-12	Anderson et al.	
	87	6551117	B2	2003-04-22	Poplawski et al.	
	88	6579014	B2	2003-06-17	Melton et al.	
	89	6648520	B2	2003-11-18	McDonald et al.	
	90	6682228	B2	2004-01-27	Ralhnam et al.	
	91	6685362	B2	2004-02-03	Burkholder et al.	
	92	6695486	B1	2004-02-24	Falkenberg	
	93	6854894	B1	2005-02-15	Yunker et al.	
	94	6872039	B2	2005-03-29	Baus et al.	
	95	6935789	B2	2005-08-30	Gross, III et al.	
	96	7090407	B2	2006-08-15	Melton et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	97	7091421	B2	2006-08-15	Kukita et al.	
	98	7111990	B2	2006-09-26	Melton et al.	
	99	7113679	B2	2006-09-26	Melton et al.	
	100	7150567	B1	2006-12-19	Luther et al.	
	101	7153041	B2	2006-12-26	Mine et al.	
	102	7198409	B2	2007-04-03	Smith et al.	
	103	7207724	B2	2007-04-24	Gurreri	
	104	7258493	B2	2007-08-21	Milette	
	105	7281859	B2	2007-10-16	Mudd et al.	
	106	7315682	B1	2008-01-10	En Lin et al.	
	107	7325976	B2	2008-02-05	Gurreri et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	108	7325980	B2	2008-02-05	Pepe	
	109	7329137	B2	2008-02-12	Martin et al.	
	110	7331718	B2	2008-05-19	Yazaki et al.	
	111	7354291	B2	2008-04-08	Caveney et al.	
	112	7371082	B2	2008-05-13	Zimmell et al.	
	113	7387447	B2	2008-06-17	Mudd et al.	
	114	7390203	B2	2008-06-24	Murano et al.	
	115	7431604	B2	2008-10-07	Waters et al.	
	116	7463803	B2	2008-12-09	Cody et al.	
	117	7465180	B2	2008-12-16	Kusuda et al.	
	118	7510335	B1	2009-03-31	Su et al.	

ALL REFERENCES CONSIDERED EXCEPT 1252 WHERE LINED THROUGH. /T.M.W./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	119	7513695	B1	2009-04-07	Lin et al.	
	120	7561775	B2	2009-07-14	Lin et al.	
	121	7591595	B2	2009-09-22	Lue et al.	
	122	7594766	B1	2009-09-29	Sasser et al.	
	123	7641398	B2	2010-01-05	O'Riorden et al.	
	124	7695199	B2	2010-04-13	Teo et al.	
	125	7699533	B2	2010-04-20	Milette	
	126	7824113	B2	2010-11-02	Wong et al.	
	127	7837395	B2	2010-11-23	Lin et al.	
	128	8186890	B2	2012-05-29	Lu	
	129	8192091	B2	2012-06-05	Hsu et al.	

ALL REFERENCES CONSIDERED EXCEPT 1253 WHERE LINED THROUGH. /T.M.W./

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	Attorney Docket Number	S09100US61

	130	8202009	B2	2012-06-19	Lin et al.	
	131	8251733	B2	2012-08-28	Wu	
	132	8267595	B2	2012-09-18	Lin et al.	
	133	8270796	B2	2012-09-18	Nhep	
	134	8408815	B2	2013-04-02	Lin et al.	
	135	8465317	B2	2013-06-18	Gniadek et al.	
	136	8636424	B1	2014-01-28	Kuffel et al.	
	137	8651749	B2	2014-02-18	Clovis et al.	
	138	8770863	B1	2014-07-08	Cooke et al.	
	139	9411110	B2	2016-08-09	Barnette, Jr., et al.	
	140	9494744	B2	2016-11-15	de Jong	

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	141	9548557	B2	2017-01-17	Liu	
	142	9551842	B2	2017-01-24	Theuerkorn	
	143	9568686	B2	2017-02-14	Fewkes et al.	
	144	9581768	B2	2017-02-28	Baca et al.	
	145	9599778	B2	2017-03-21	Wong et al.	
	146	9684136	B2	2017-06-20	Cline et al.	
	147	9709753	B2	2017-08-18	Chang et al.	
	148	9869825	B2	2018-01-16	Bailey et al.	
	149	5506922		1996-04-09	Grois et al.	
	150	6634801	B1	2003-10-21	Waldron et al.	
	151	8083450	B1	2011-12-27	Smith et al.	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

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	152	D323143	S	1992-01-14	Ohkura et al.	
	153	D533504	S	2006-12-12	Lee	
	154	D534124	S	2006-12-26	Taguchi	
	155	D543146	S	2007-05-22	Chen et al.	
	156	D558675	S	2008-01-01	Chien et al.	
	157	D572661	S	2008-07-08	En Lin et al.	
	158	D641708	S	2011-07-29	Tammauchi	
	159	RE37080	E	2001-03-06	Stephenson et al.	
	160	6250817	B1	2001-06-26	Lampert et al.	
	161	7712970	B1	2010-05-11	Lee	
	162	9250402	B2	2016-02-02	Ishii et al.	

ALL REFERENCES CONSIDERED EXCEPT 1256 WHERE LINED THROUGH. /T.M.W./

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	163	9448370	B2	2016-09-20	Xue et al.	
	164	9684130	B2	2017-06-20	Veatch et al.	
	165	10107972	B1	2018-10-23	Gniadek et al.	
	166	5031981		1991-07-16	Peterson	
	167	5146813		1992-09-15	Stanfill, Jr.	
	168	5321784		1994-06-14	Cubukciyan et al.	
	169	6817272	B2	2004-11-16	Holland	
	170	8869661	B2	2014-10-28	Opstad	
	171	9678283	B1	2017-06-13	Chang et al.	
	172	5073045		1991-12-17	Abendschein	
	173	7534128	B2	2009-05-19	Caveney et al.	

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	174	9989711	B2	2018-06-05	Ott et al.	
	175	10146011	B2	2018-12-04	Nhep	
	176	10281668	B2	2019-05-07	Takano et al.	
	177	10281669	B2	2019-05-07	Takano et al.	

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	1	20020191919	A1	2002-12-19	Nolan	
	2	20020168148	A1	2002-11-14	Gilliland	
	3	20030063862	A1	2003-04-03	Fillion	
	4	20040052473	A1	2004-03-18	Seo	
	5	20040109646	A1	2004-06-10	Anderson	

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	6	20040247252	A1	2004-12-09	Ehrenreich	
	7	20060013539	A1	2006-01-19	Thaler	
	8	20070025665	A1	2007-02-01	Dean	
	9	20090176401	A1	2009-07-09	Gu	
	10	20090290938	A1	2009-11-26	Asaoka	
	11	20100092136	A1	2010-04-15	Nhep	
	12	20100284656	A1	2010-11-11	Morra	
	13	20110155810	A1	2011-06-30	Taniguichi	
	14	20110239220	A1	2011-09-29	Gibson	
	15	20120237177	A1	2012-09-20	Minota	
	16	20130019423	A1	2013-01-24	Srutkowski	

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	17	20130170797	A1	2013-07-04	Ott	
	18	20130216185	A1	2013-08-22	Klavuhn	
	19	20130308915	A1	2013-11-21	Buff	
	20	20140056562	A1	2014-02-27	Limbert	
	21	20140241644	A1	2014-08-28	Kang	
	22	20150003788	A1	2015-01-01	Chen	
	23	20150111417	A1	2015-04-23	Vanderwoud	
	24	20150241644	A1	2015-08-27	Lee	
	25	20160139343	A1	2016-05-19	Dean, Jr., et al.	
	26	20160349458	A1	2016-12-01	Murray	
	27	20160370545	A1	2016-12-22	Jiang	

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	28	20180156988	A1	2018-06-07	Gniadek	
	29	20180172923	A1	2018-06-21	Bauco	
	30	20020172467	A1	2002-11-21	Anderson et al.	
	31	20030053787	A1	2003-03-20	Lee	
	32	20030157825	A1	2003-08-21	Kane	
	33	20040161958	A1	2004-06-19	Togami et al.	
	34	20040136657	A1	2004-07-15	Ngo	
	35	20040141693	A1	2004-07-22	Szilagvi et al.	
	36	20040234209	A1	2004-11-26	Cox et al.	
	37	20050111796	A1	2005-05-26	Matasek et al.	
	38	20050141817	A1	2005-06-30	Yazaki et al.	

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	39	20060089049	A1	2006-04-27	Sedor	
	40	20060127025	A1	2006-06-15	Haberman	
	41	20060160429	A1	2006-07-20	Dawiedczyk et al.	
	42	20060269194	A1	2006-11-30	Luther et al.	
	43	20060274411	A1	2006-12-07	Yamauchi	
	44	20070028409	A1	2007-02-08	Yamada	
	45	20070079854	A1	2007-04-12	You	
	46	20070098329	A1	2007-06-03	Shimoji et al.	
	47	20070149062	A1	2007-06-28	Long et al.	
	48	20070230874	A1	2007-10-04	Lin	
	49	20070232115	A1	2007-10-04	Burke et al.	

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	50	20070243749	A1	2007-10-18	Wu	
	51	20080008430	A1	2008-01-10	Kewitsch	
	52	20080044137	A1	2008-02-21	Luther et al.	
	53	20080069501	A1	2008-03-20	Mudd et al.	
	54	20080101757	A1	2008-05-01	Lin et al.	
	55	20080226237	A1	2008-09-18	O'Rioreden et al.	
	56	20080267566	A1	2008-10-30	En Lin	
	57	20090222457	A1	2009-01-22	de Jong et al.	
	58	20090028507	A1	2009-01-29	Jones et al.	
	59	20090196555	A1	2009-08-06	Lin et al.	
	60	20090214162	A1	2009-08-27	O'Riorden et al.	

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	61	20090220197	A1	2009-09-03	Gniadek	
	62	20100034502	A1	2010-02-11	Lu et al.	
	63	20100247041	A1	2010-09-30	Szilagyi	
	64	20100322561	A1	2010-12-23	Lin et al.	
	65	20110044588	A1	2011-02-24	Larson et al.	
	66	20110131801	A1	2011-06-09	Nelson et al.	
	67	20110177710	A1	2011-07-21	Tobey	
	68	20120099822	A1	2012-04-26	Kuffel et al.	
	69	20120155810	A1	2012-06-21	Nakagawa	
	70	20120189260	A1	2012-07-26	Kowalczyk et al.	
	71	20120269485	A1	2012-10-25	Haley et al.	

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	72	20120301080	A1	2012-11-29	Gniadek	
	73	20130071067	A1	2013-03-21	Lin	
	74	20130089995	A1	2013-04-11	Gniadek et al.	
	75	20130094816	A1	2013-04-18	Lin et al.	
	76	20130121653	A1	2013-05-16	Shitama et al.	
	77	20130183012	A1	2013-07-18	Lopez et al.	
	78	20130259429	A1	2013-10-03	Czosnowski et al.	
	79	20130322825	A1	2013-12-05	Cooke et al.	
	80	20140016901	A1	2014-01-16	Lamboum et al.	
	81	20140023322	A1	2014-01-23	Gniadek	
	82	20140050446	A1	2014-02-20	Chang	

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	83	20140133808	A1	2014-05-14	Hill et al.	
	84	20140334780	A1	2014-11-13	Nguyen et al.	
	85	20140348477	A1	2014-11-27	Chang	
	86	20150378113	A1	2015-12-31	Good et al.	
	87	20160259135	A1	2016-09-08	Gniadek et al.	
	88	20090092360	A1	2009-04-09	Lin et al.	
	89	20090220200	A1	2009-09-03	Wong et al.	
	90	20090290839	A1	2009-11-26	En Lin	
	91	20100322561	A1	2010-12-23	Lin et al.	
	92	20140219621	A1	2014-08-07	Barnette, Jr., et al.	
	93	20140241688	A1	2014-08-08	Isenhour et al.	

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	94	20140226946	A1	2014-08-14	Cooke et al.	
	95	20140241678	A1	2014-08-28	Bringuier et al.	
	96	20150212282	A1	2015-07-30	Lin	
	97	20150301294	A1	2015-10-22	Chang et al.	
	98	20150331201	A1	2015-11-19	Takano et al.	
	99	20150355417	A1	2015-12-10	Takano et al.	
	100	20160131849	A1	2016-05-12	Takano et al.	
	101	20160291262	A1	2016-06-10	Chang et al.	
	102	20160195682	A1	2016-06-23	Takano	
	103	20160195682	A1	2016-07-07	Takano et al.	
	104	20160266326	A1	2016-09-15	Gniadek	

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	105	20170003458	A1	2017-01-05	Gniadek	
	106	20080056647	A1	2008-03-06	Margolin et al.	
	107	20090047818	A1	2009-02-19	Irwin et al.	
	108	20150370021	A1	2015-12-24	Chan	
	109	20170343740	A1	2017-11-30	Nguyen	
	110	20070149028	A1	2007-06-01	Yu et al.	
	111	20100220961	A1	2010-09-02	de Jong et al.	
	112	20140169727	A1	2014-06-19	Veatch et al.	
	113	20160231512	A1	2016-08-11	Seki	
	114	20170254961	A1	2017-09-07	Kamada et al.	
	115	20170276275	A1	2017-09-28	Beemer et al.	

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	116	20190204513	A1	2019-07-04	Davidson et al.	
	117	20050036744	A1	2005-02-17	Caveney et al.	
	118	20160161681	A1	2016-06-09	Banal, Jr., et al.	
	119	20170205587	A1	2017-07-20	Chang et al.	
	120	20170205591	A1	2017-07-20	Takano et al.	
	121	20190064447	A1	2019-02-28	Chang et al.	
	122	20170277059	A1	2017-09-28	Miura et al.	

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	1	2495693	CA	A1	2004-04-08	Corning Cable Systems LLC		
	2	2836038	CN	Y	2006-11-08	Chen ye		X

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	3	201383588	CN	Y	2010-01-13	Xi An Xikang Technology Co., Ltd.		☒
	4	2026500189	CN	U	2013-12-05	Tyco Electronics (Shanghai) Co., Ltd. et al.		☒
	5	202006011910	DE	U1	2007-03-22	Weidmueller Interface GmbH & Co., KG		☐
	6	102006019335	DE	U1	2007-10-25	Telegaetner Geraetebau GmbH		☒
	7	1074868	EP	A1	2001-07-02	Yazaki Corporation		☐
	8	1211537	EP	A2	2002-06-05	Lucent Technologies, Inc.		☐
	9	1245980	EP	A1	2002-10-02	Corning Cable Systems LLC		☐
	10	1566674	EP	A2	2005-08-24	Riechle & De Massan		☒
	11	2111240	GB	A	1983-06-29	Allied Corp.		☐
	12	2009229545	JP	A	2009-10-08	Sanwa Denki Kogyo Co., Ltd.		☒
	13	2009276493	JP	A	2009-11-25	Sanwa Denki Kogyo Co., Ltd.		☒

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	14	200821653	TW	A	2008-05-16	SENKO Advanced Component		☐
	15	200179904	WO	A2	2001-10-25	Krone GmbH		☒
	16	2004027485	WO	A1	2004-04-01	Van Der Steen et al.		☐
	17	2008112986	WO	A1	2008-09-18	SENKO Advanced Components		☐
	18	2009135787	WO	A1	2009-11-12	Huber & Suhner AG		☒
	19	2010024851	WO	A2	2010-03-04	Corning Cable Systems LLC		☐
	20	2012136702	WO	A1	2012-10-11	FCI		☐
	21	2012162385	WO	A1	2012-11-29	SENKO Advanced Components		☐
	22	2014028527	WO	A1	2014-02-20	SENKO Advanced Components		☐
	23	2014182351	WO	A1	2014-11-13	SENKO Advanced Components		☐
	24	2015191024	WO	A1	2015-12-17	SENKO Advanced Components		☐

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	25	2016148741	WO	A1	2016-09-22	SENKO Advanced Components		☐
	26	2016019993	WO	A1	2016-02-11	Prysmian Spa		☐

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	1	International Search Report and Written Opinion; Application Number PCT/US2018/042202, dated December 7, 2018, pages 17.	
	2	International Search Report and Written Opinion, Application Number PCT/US2019/013861, dated April 8, 2019, pages 15.	
	3	Fiber Optic Connectors Tutorial, 2018, pages 20.	
	4	Fiber Optic Glossary, February 29, 2016, pages 93.	
	5	"Fiber Optic Interconnect Solutions, Tactical Fiber Optical Connectors, Cables and Termini" 2006, Glenair, Inc., Glendale, California, www.mps-electronics.de, pages 232.	
	6	"Fiber Optic Products Catalog" November 2007, Tyco Electronics Corporation, Harrisburg, Pennsylvania, www.ampnetconnect.com, pages 204.	
	7	"Fiber Optic Connectors and Assemblies Catalog" 2009, Huber & Suhner Fiver Optics, Herisau, Switzerland, www.hubersuhner.com, pages 104.	

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Attorney Docket Number	S09100US61

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The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan Pollmann/	Date (YYYY-MM-DD)	2021-11-01
Name/Print	Jonathan Pollmann	Registration Number	71,702

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4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT 1275 WHERE LINED THROUGH. /T.M.W./

FORM PTO-1449 (Modified) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. **S09100US61**	SERIAL NO. **17/370,057**
	APPLICANT Kazuyoshi TAKANO	
	FILING DATE 2021-07-08	GROUP ART UNIT **2883**

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US4240695A	1980-12-23	Evans, Robert F.	
		US5041025A	1991-08-20	Haitmanek, Louis F.	
		US5101463A	1992-03-31	Cubukciyan, Nuran	
		US5159652A	1992-10-27	Grassin D'Alphonse, Emmanuel	
		US5315679A	1994-05-24	Baldwin, Clark F.	
		US5418875A	1995-05-23	Nakano, Toshiaki	
		US5862282A	1999-01-19	Matsuura, Ichiro	
		US5930426A	1999-07-27	Harting, Dietmar	
		US5953473A	1999-09-14	Shimotsu, Akihiro	
		US6095862A	2000-08-01	Doye, Dennis Lee	
		US6240228B1	2001-05-29	Chen, Wenzong	
		US6250817B1	2001-06-26	Lampert, Norman Roger	
		US6318903B1	2001-11-20	Andrews, Scott R.	
		US6450695B1	2002-09-17	Matsumoto, Tateomo	
		US6527450B1	2003-03-04	Miyachi, Akihiro	
		US6572276B1	2003-06-03	Theis, Hans	
		US7717625B2	2010-05-18	Margolin, Mark	
		US8414196B2	2013-04-09	Lu, Yu	
		US8550728B2	2013-10-08	Takahashi, Shigeo	
		US8757894B2	2014-06-24	Katoh, Seiji	
		US8764308B2	2014-07-01	Irwin, Phillip J.	
		US9063296B2	2015-06-23	Dong, Min	
		US9557495B2	2017-01-31	Raven, Asher	
		US9829653B1	2017-11-28	Nishiguchi, Yuki	
		US10067301B2	2018-09-04	Murray, David Patrick	
		US10114180B2	2018-10-30	Suzic, Dusko	
		US20040136657A1	2004-07-15	Ngo, Hung, Viet	
		US20060076061A1	2006-04-13	Bush, Shawn	
		US20060153503A1	2006-07-13	Suzuki, Toshio	
		US20060193562A1	2006-08-31	Theuerkorn, Thomas	
		US20080064334A1	2008-03-13	Hamadi, Charles, Jamile	
		US20100054668A1	2010-03-04	Nelson, Keith	
		US20100061069A1	2010-03-11	Cole, Christopher R.	

ALL REFERENCES CONSIDERED EXCEPT 276 WHERE LINED THROUGH. /T.M.W./

FORM PTO-1449 (Modified) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. **S09100US61**	SERIAL NO. **17/370,057**
	APPLICANT Kazuyoshi TAKANO	
	FILING DATE 2021-07-08	GROUP ART UNIT **2883**

		US20110044588A1	2011-02-24	Larson, Donald K.	
		US20110058773A1	2011-03-10	Peterhans, Adrian	
		US20120308183A1	2012-12-06	Irwin, Phillip J.	
		US20120328248A1	2012-12-27	Larson, Donald K.	
		US20130101258A1	2013-04-25	Hikosaka, Tomohiro	
		US20140056562A1	2014-02-27	Limbert, Mark John	
		US20140241644A1	2014-08-28	KANG, Byong Min	
		US20140334780A1	2014-11-13	NGUYEN, Anh Ngoc	
		US20140348477A1	2014-11-27	CHANG, Jimmy Jun-Fu	
		US20150003788A1	2015-01-01	Chen, Wenzong	
		US20150177463A1	2015-06-25	LEE, JHIH-PING	
		US20150198766A1	2015-07-16	TAKAHASHI, Shigeo	
		US20150241644A1	2015-08-27	LEE, WEI-CHENG	
		US20150301294A1	2015-10-22	CHANG, Jimmy Jun-Fu	
		US20160172852A1	2016-06-16	TAMURA, MASAYA	
		US20160259135A1	2016-09-08	GNIADEK, Jeffrey	
		US20160266326A1	2016-09-15	GNIADEK, Jeffrey	
		US20160320572A1	2016-11-03	Gniadek, Jeffrey	
		US20170205590A1	2017-07-20	BAILEY, William	
		US20170212313A1	2017-07-27	ELENABAAS, Jacob Arie	
		US20170212316A1	2017-07-27	TAKANO, Kazuyoshi	
		US20170276887A1	2017-09-28	Allen, Barry Wayne	
		US20180128988A1	2018-05-10	CHANG, Jimmy Jun-Fu	
		US20180252872A1	2018-09-06	Chen, Szu Ming	
		US20180341069A1	2018-11-29	Takano, Kazuyoshi	
		US681132A	1901-08-20	NORTON EDWIN	
		US20160178852A1	2016-06-23	Takano, Kazuyoshi	

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FOREIGN PATENT DOCUMENTS

	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		CN2836038Y	2006-11-08	CHEN, Ye	
		CN201383588Y	2010-01-13	TIAN, Fang-ku	
		DE19507669A1	1996-09-12	Schroeder, Wolfgang, Dipl.-Ing.	
		EP1211537A3	2002-06-12	Lampert, Norman R.	
		JP2000089059A	2000-03-31	SATO SADATAKA	
		JP0375233182	2006-03-08		
		JP04377820B2	2009-12-02		
		KR2009005382A	2009-01-13	KIM, Jin-Ki	
		KR200905382U	2009-06-03	KWON, Oh Joon	
		KR137168681	2014-03-07	MOON, GAE TAE	
		WO2001079904A2	2001-10-25	KAHLE, Eberhard	
		WO2006007120A1	2006-01-19	COX, Larry, R.	
		WO2015103783A1	2015-07-16	MURRAY, David Patrick	
		WO2019126333A1	2019-06-27	HIGLEY, Jason	
		CA2495693A1	2004-04-08	DEL GROSSO, STEVE C.	
		EP1074868A1	2001-02-07	Shirakawa, Tsuguhito	
		WO2012162385A1	2012-11-29	GNIADEK, Jeffrey	

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	Cite No.	Author, Title, Date, Pertinent Pages, Etc
		PCT/US2018/062406 International Search Report dated Mar. 18, 2019.
		PCT/US2018/062406 The written Opinion dated Mar. 18, 2019.
		PCT/US2018/062405 International Search Report dated Apr. 3, 2019.
		PCT/US2018/062405 The written Opinion dated Apr. 3, 2019.
		PCT/IB2018/056133 Written Opinion dated Jan. 3, 2019.
		PCY/IB/056133 Search Report dated Jan. 3, 2019.
		Final Office Action, U.S. Appl. No. 16/035,691, dated Feb. 11, 2019, pp. 8.

ALL REFERENCES CONSIDERED EXCEPT 278 WHERE LINED THROUGH. /T.M.W./

FORM PTO-1449 (Modified) LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. **S09100US61**	SERIAL NO. **17/370,057**
	APPLICANT Kazuyoshi TAKANO	
	FILING DATE 2021-07-08	GROUP ART UNIT **2883**

		Non-Final Office Action, U.S. Appl. No. 16/035,695, dated Sep. 28, 2018, pp. 7.
		International Search Report and Written Opinion, Application No. PCT/US/2018/042202, pp. 17, dated Dec. 7, 2018.
		International Search Report and Written Opinion, Application No. PCT/US19/24718, dated Jun. 26, 2019, pp. 7.
		ISR for PCT/US2019/013861, Apr. 8, 2019, 3 pages.
		WO for PCT/US2019/013861, Apr. 8, 2019, 11 pages.
		International Search Report and Written Opinion for Application No. PCT/US2018/62406 dated Mar. 18, 2019, 12, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/40700 dated Sep. 27, 2019, 12, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/50895 dated Jan. 6, 2020, 12, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/50909 dated Dec. 17, 2019, 11, pages, United States.
		International Search Report and Written Opinion for Application No. PCT/US2019/56564 dated Jan. 14, 2020, 14, pages, United States.
		International Search Report and Written Opinion, Application No. PCT/US19/46397, dated Nov. 12, 2019, pp. 6.
		International Search Report; PCT/US2018/042202 filed Jul. 16, 2018; Applicant: Senko Advanced Components, Inc.
		PCT/IB2018/056133 Written Opinion dated Jan. 3, 2019.
		PCY/IB/056133 Search Report dated Jan. 3, 2019.
		International Preliminary Report on Patentability for PCT/US2019/022940 dated October 1, 2020, 11 pages.
		Extended European Search Report and Written Opinion, Application No. 18832246.5, March 15, 2021, Pages 6.

EXAMINER /TINA M WONG/ (11/02/2021)	DATE CONSIDERED 11/02/2021
EXAMINER: Initial if reference considered whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance *and* not considered. Include copy of this form with next communication to applicant.	

Information Disclosure Statement-PTO-1449 (Modified)

ALL REFERENCES CONSIDERED EXCEPT 279 WHERE LINED THROUGH. /T.M.W./

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	OPAP
Examiner Name	CENTRAL DOCKET
Attorney Docket Number	S09100US61

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	CN106997078	CN		2017-08-01			

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /T.M.W./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Kazuyoshi TAKANO
	Art Unit	OPAP
	Examiner Name	CENTRAL DOCKET
	Attorney Docket Number	S09100US61

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EXAMINER SIGNATURE

Examiner Signature	/TINA M WONG/ (11/02/2021)	Date Considered	11/02/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT 1028 WHERE LINED THROUGH. /T.M.W./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	OPAP
Examiner Name	CENTRAL DOCKET
Attorney Docket Number	S09100US61

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Qi Zhang/	Date (YYYY-MM-DD)	2021-10-29
Name/Print	Qi Zhang	Registration Number	L1394

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT 1282 WHERE LINED THROUGH. /T.M.W./

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

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ALL REFERENCES CONSIDERED EXCEPT 1283 WHERE LINED THROUGH. /T.M.W./

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	343	senko.as.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:56 PM
L2	112	takano.in. AND chang.in.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:57 PM
L3	59	1 AND 2	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:57 PM
L4	0	3 AND (latch WITH depressible).clm. AND (elongate WITH arm).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:57 PM
L5	0	3 AND (latch WITH depressible).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:59 PM
L6	1	1 AND (latch WITH depressible).clm. AND (elongate WITH arm).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:59 PM
L7	1	"20130322825".pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 06:15 PM
L8	7	3 AND (wong.xp.)	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 07:09 PM
L9	33	("5418875" | "6095862" | "6240228" | "6250817" | "6450695" | "7150567" | "7712970" | "9448370" | "9829653" | "20020168148" | "20060193562" | "20070149028" | "20080131055" | "20090047818" | "20090220227" | "20100054668" | "20100061069" | "20110058773" | "20120057824" | "20150198766" | "20150241644" | "20150293310" | "20160139343" | "20160139344" | "20170205587" | "20170205590" | "20170205591" | "20170212316" | "20170276887" | "20170343740" | "20190154924").pn. OR ("10838152").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/01 07:10 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	7347634	B2	2008-03-25	Gunther et al.	
	2	7261472	B2	2007-08-28	Suzuki et al.	
	3	7284912	B2	2007-10-23	Suzuki et al.	
	4	7717625	B2	2010-05-18	Margolin et al.	
	5	7261472	B2	2007-08-28	Suzuki et al.	
	6	9250399	B2	2016-02-02	Margolin et al.	

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First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

	1	20080056647	A1	2008-03-06	Margolin et al.	
	2	20050135755	A1	2005-06-23	Kiani et al.	
	3	20080013896	A1	2008-01-17	Salzberg et al.	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2012053375	JP	A	2012-03-15	Sanwa Denki Kogyo Co. Ltd.		
	2	2011027876	JP	A	2011-02-10	Sanwa Denki Kogyo Co. Ltd.		
	3	20040028409	KR	A	2006-04-11	Katie Co., Ltd; Hirose Korea Co., Ltd.		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

EXAMINER SIGNATURE			
Examiner Signature	/TINA M WONG/ (11/02/2021)	Date Considered	11/02/2021

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT 1278 WHERE LINED THROUGH. /T.M.W./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	17370057
Filing Date	2021-07-08
First Named Inventor	Kazuyoshi TAKANO
Art Unit	2883
Examiner Name	TBD
Attorney Docket Number	S09100US61

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jonathan Pollmann/	Date (YYYY-MM-DD)	2021-11-01
Name/Print	Jonathan Pollmann	Registration Number	71702

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/370,057	Filing Date 07/08/2021	☐ To be Mailed

ENTITY: ☐ LARGE ☑ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $240 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/11/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 40	Minus	** 30	= 10		x $50 =	500
	Independent (37 CFR 1.16(h))	* 7	Minus	*** 3	= 4		x $240 =	960
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	1460

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/CARLOTTA B LEE/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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ELECTRONIC PAYMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/370,057	11/11/2021 05:20:08 PM ET	S09100US61

Title of Invention

ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1025	FILED BY	Meagan Fitzpatrick
PATENT CENTER #	60396411	AUTHORIZED BY	Jonathan Pollmann
CUSTOMER #	152878	FILING DATE	07/08/2021
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Kazuyoshi TAKANO

Payment Information

PAYMENT METHOD	PAYMENT TRANSACTION ID	PAYMENT AUTHORIZED BY
DA / 194409	E2021AAH20492839	Meagan Fitzpatrick

FEE CODE	DESCRIPTION	ITEM PRICE($)	QUANTITY	ITEM TOTAL($)
2203	MULTIPLE DEPENDENT CLAIM	430.00	1	430.00
2201	EACH INDEPENDENT CLAIM IN EXCESS OF THREE	240.00	4	960.00
			TOTAL AMOUNT:	$1,390.00

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New Applications Under 35 U.S.C. 111

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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/370,057	**11/11/2021 05:20:08 PM ET**	**S09100US61**

Title of Invention

ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1025	FILED BY	Meagan Fitzpatrick
PATENT CENTER #	60396411	FILING DATE	07/08/2021
CUSTOMER #	152878	FIRST NAMED INVENTOR	Kazuyoshi TAKANO
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Jonathan Pollmann

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
Amendment.pdf	11	Amendment/Req. Reconsideration-After Non-Final Reject	132 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
Amendment.pdf	3B39721ACBC8CE5512854E8E8EAD28B0883FEAA86D5CCC03839488D69E3FFA214043BE875E0ADEE0651150087371F04445B5181832EDEB979EC8B835C5DD37D0

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If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Kazuyoshi Takano Art Unit: 2874
Serial No: 17/370,057
Filed: July 8, 2021
Confirmation No: 1025
For: Ultra-small form factor optical connectors used as part of a reconfigurable outer housing
Examiner: Tina Wong

Amendment A

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

COMMISSIONER:

In response to the Office action dated November 5, 2021, please enter the following amendments and consider the following remarks.

Amendments to the claims begin on page 2.

Applicant's Remarks begin on page 10 of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (Cancelled).

2. ~~The optical fiber connector as set forth in claim 1,~~ An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

3. (Original) The optical fiber connector as set forth in claim 2, wherein the guide defines a groove extending along the longitudinal axis.

4. (Original) The optical fiber connector as set forth in claim 3, wherein the elongate arm is slidably received in the groove.

5. (Currently amended) The optical fiber connector as set forth in claim [[1]] 2, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

6. (Original) The optical fiber connector as set forth in claim 5, wherein the front end portion defines an opening.

7. (Original) The optical fiber connector as set forth in claim 6, wherein the depressible latch is received in the opening.

8. (Original) The optical fiber connector as set forth in claim 7, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion.

9. (Original) The optical fiber connector as set forth in claim 8, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

10. (Original) The optical fiber connector as set forth in claim 9, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

11. (Original) The optical fiber connector as set forth in claim 10, wherein the depressible latch arm has an upper surface, the edge opposing the upper surface.

12. (Currently amended) ~~The optical fiber connector as set forth in claim 11,~~ An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

wherein the front end portion defines an opening;

wherein the depressible latch is received in the opening;

wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion;

wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis;

wherein the front end portion of the elongate arm includes an edge defining a front end of the opening;

wherein the depressible latch arm has an upper surface, the edge opposing the upper surface;

wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

13. (Currently amended) ~~The optical fiber connector as set forth in claim 5,~~ An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

the optical fiber connector further comprising a push/pull tab extending from the rear end portion of the elongate arm.

14. (Currently amended) The optical fiber connector as set forth in claim [[1]] 2, wherein the connector housing includes a front body and a back body.

15. (Currently amended) ~~The optical fiber connector as set forth in claim 14,~~ An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing includes a front body and a back body;

wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

16. (Original) The optical fiber connector as set forth in claim 14, further comprising a single cable boot extending rearward from the back body.

17. (Currently amended) The optical fiber connector as set forth in claim [[1]] 2, further comprising a single cable boot extending rearward from the connector housing.

18. (Cancelled)

19. (Currently amended) ~~The optical fiber connector as set forth in claim 18,~~ An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

20. (Original) The optical fiber connector as set forth in claim 19, wherein the guide defines a groove extending along the longitudinal axis.

21. (Original) The optical fiber connector as set forth in claim 20, wherein the elongate arm is slidably received in the groove.

22. (Currently amended) The optical fiber connector as set forth in claim [[18]] 19, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

23. (Original) The optical fiber connector as set forth in claim 22, wherein the front end portion defines an opening.

24. (Original) The optical fiber connector as set forth in claim 23, wherein the depressible latch is received in the opening.

25. (Original) The optical fiber connector as set forth in claim 24, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion.

26. (Original) The optical fiber connector as set forth in claim 25, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

27. (Original) The optical fiber connector as set forth in claim 26, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

28. (Original) The optical fiber connector as set forth in claim 27, wherein the depressible latch arm has an upper surface, the edge opposing the upper surface.

29. (Currently amended) ~~The optical fiber connector as set forth in claim 28,~~ An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

wherein the front end portion defines an opening;

wherein the depressible latch is received in the opening;

wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion;

wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis;

wherein the front end portion of the elongate arm includes an edge defining a front end of the opening;

wherein the depressible latch arm has an upper surface, the edge opposing the upper surface;

wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

30. (Currently amended) ~~The optical fiber connector as set forth in claim 22,~~ An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

further comprising a push/pull tab extending from the rear end portion of the elongate arm.

31. (New) The optical fiber connector as set forth in claim 11, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector

housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

32. (New) The optical fiber connector as set forth in claim 31, wherein the guide defines a groove extending along the longitudinal axis.

33. (New) The optical fiber connector as set forth in claim 32, wherein the elongate arm is slidably received in the groove.

34. (New) The optical fiber connector as set forth in claim 32, wherein the connector housing includes a front body and a back body.

35. (New) The optical fiber connector as set forth in claim 34, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

36. (New) The optical fiber connector as set forth in claim 35, further comprising a single cable boot extending rearward from the connector housing.

37. (New) The optical fiber connector as set forth in claim 28, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

38. (New) The optical fiber connector as set forth in claim 37, wherein the guide defines a groove extending along the longitudinal axis.

39. (New) The optical fiber connector as set forth in claim 38, wherein the elongate arm is slidably received in the groove.

40. (New) The optical fiber connector as set forth in claim 38, wherein the connector housing includes a front body and a back body.

41. (New) The optical fiber connector as set forth in claim 40, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

42. (New) The optical fiber connector as set forth in claim 41, further comprising a single cable boot extending rearward from the connector housing.

REMARKS

By this amendment, claims 1 and 18 are cancelled; claims 2, 5, 12, 13, 14, 15, 17, and 19 are amended, and claims 31-42 are newly added. No new matter is added. Claims 2-17 and 19-42 are pending.

Allowable Subject Matter

Applicant gratefully acknowledges the indication that claims 2-4, 12, 13, 15, 19-21, 29 and 30 would be allowable if rewritten in independent form. In response, Applicant hereby rewrites claims 2, 12, 13, 15, 19, 29, and 30 in independent form in order to expedite prosecution. Claims 3-4 depend from claim 2 and claims 20-21 depend from claim 19 and are therefore likewise submitted to be in condition for allowance. Favorable consideration and allowance of claims 2-4, 12, 13, 15, 19-21, 29, and 30 are therefore respectfully requested.

35 U.S.C. § 102, 103

Claims 1, 5-11, 14, 16-18, and 22-28 stand rejected under 35 U.S.C. §§ 102, 103 as allegedly being anticipated or rendered obvious by Nguyen (US 2017/0343740). Applicant respectfully disagrees with the rejections. But in an effort constructively advance and expedite prosecution, Applicant has amended the claim set to cancel claims 1 and 18, make claims 5-11, 14, and 16-17 depend from allowable claim 2 and to make claims 22-28 depend from allowable claim 19. The rejections of claims 1 and 18 are now moot. And each of claims 5-11, 14, 16-17, and 22-28 is now submitted to be patentable over the cited references for at least the same reasons as the allowable independent claim from which it depends. Withdrawal of the rejections of claims 1, 5-11, 14, 16-18, and 22-28 and allowance of claims 5-11, 14, and 16-17 are therefore respectfully requested.

New Claims

New claims 31-36 depend directly or indirectly from allowable claim 2 and new claims 37-42 depend directly or indirectly from allowable claim 28. Each of claims 31-42 is therefore submitted to be patentable over the cited references for at least the same reasons as the independent claim from which it depends. Favorable consideration and allowance of claims 31-42 are therefore respectfully requested.

Conclusion

Fees for four claims in excess of three and 10 additional claims in excess of 20 are submitted herewith. Should any other fee be required, the Commissioner is hereby authorized to charge the necessary fee to Deposit Account No. 19-4409.

Respectfully submitted,

/Jonathan Pollmann/

Jonathan G. Pollmann, Reg. No. 71,702
Stinson LLP
7700 Forsyth Blvd., Suite 1100
St. Louis, Missouri 63105
(314) 863-0800

JGP/dss



United States Patent and Trademark Office

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Document Code:WFEE

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Sale Accounting Date:11/23/2021

Sale Item Reference Number	Effective Date
17370057	11/11/2021

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I2021AME43050813	1202	CLAIMS IN EXCESS OF 20	$1,000.00	Deposit Account

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61

CONFIRMATION NO. 1025

152878
Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

PUBLICATION NOTICE

OC00000130174029

Title:ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Publication No.US-2021-0373262-A1
Publication Date:12/02/2021

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently https://portal.uspto.gov/pair/PublicPair. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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NOTICE OF ALLOWANCE AND FEE(S) DUE

152878 7590 12/09/2021

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
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Marlborough, MA 01752

EXAMINER
WONG, TINA MEI SENG

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 12/09/2021

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

TITLE OF INVENTION: ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	03/09/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

152878 7590 12/09/2021

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

TITLE OF INVENTION: ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	03/09/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
WONG, TINA MEI SENG	2874	385-078000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

152878 7590 12/09/2021

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

EXAMINER	
WONG, TINA MEI SENG	
ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 12/09/2021

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 17/370,057	Applicant(s) TAKANO et al.	
	Examiner TINA M WONG	Art Unit 2874	AIA (FITF) Status Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to amendment received 11 November 2021.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 2-17 and 19-42 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☑ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/TINA M WONG/
Primary Examiner, Art Unit 2874

DETAILED ACTION

Applicant's amendment and remarks received 11 November 2021 have been fully considered. Claims 2-17 and 19-42 are therefore allowed with the additional limitations included.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The Specification has been amended to correct a typographical error in paragraph [0098]. Figure 69 is incorrected referred to as Figure 19.

The application has been amended as follows:

[0098] FIG. 69 is an illustrative example of a method of switching modes of operation of one or more connectors.

Examiner's Statement of Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

Claims 2-11, 14, 16, 17 and 31-36 are allowed. Previously objected to claim 2 has been rewritten in independent form as currently amended claim 2 to include all of the limitations of the

case claim and any intervening claims and is now in conditions for allowance. Claims 3-11, 14, 16, 17 and 31-36 are dependent on amended claim 2 and are therefore also allowable.

Claim 12 is allowed. Previously objected claim 12 has been rewritten in independent form as currently amended claim 12 to include all of the limitations of the base claim and any intervening claims and is now in conditions for allowance.

Claim 13 is allowed. Previously objected claim 13 has been rewritten in independent form as currently amended claim 13 to include all of the limitations of the base claim and any intervening claims and is now in conditions for allowance.

Claim 15 is allowed. Previously objected claim 15 has been rewritten in independent form as currently amended claim 15 to include all of the limitations of the base claim and any intervening claims and is now in conditions for allowance.

Claims 19-28 and 37-42 are allowed. Previously objected claim 19 has been rewritten in independent form as currently amended claim 19 to include all of the limitations of the base claim and any intervening claims and is now in conditions for allowance. Claims 20-28 and 37-42 are dependent on amended claim 19 and are therefore also allowable.

Claim 29 is allowed. Previously objected claim 29 has been rewritten in independent form as currently amended claim 29 to include all of the limitations of the base claim and any intervening claims and is now in conditions for allowance.

Claim 30 is allowed. Previously objected claim 30 has been rewritten in independent form as currently amended claim 30 to include all of the limitations of the base claim and any intervening claims and is now in conditions for allowance.

Therefore, claims 2-17 and 19-42 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. None of the documents cited by the Examiner discloses or reasonably suggests the allowable subject matter discussed above.

Reference A discusses an optical connector from the same Assignee, Senko Advanced Components.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TINA M WONG whose telephone number is (571)272-2352. The examiner can normally be reached M-F 8:30-5:30.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le can be reached on (571) 272-2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available

to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TINA M WONG/
Primary Examiner, Art Unit 2874

Notice of References Cited	Application/Control No. 17/370,057	Applicant(s)/Patent Under Reexamination TAKANO et al.	
	Examiner TINA M WONG	Art Unit 2874	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-11181701-B2	11-2021	Wong; Kim Man	G02B6/3821	1/1
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/370,057	TAKANO et al.
	Examiner	**Art Unit**
	TINA M WONG	2874

CPC						
Symbol					**Type**	**Version**
G02B	/	6	/	4292	F	2013-01-01
G02B	/	6	/	387	I	2013-01-01
G02B	/	6	/	3893	I	2013-01-01
G02B	/	6	/	3825	I	2013-01-01
G02B	/	6	/	3873	A	2013-01-01
G02B	/	6	/	3878	A	2013-01-01
G02B	/	6	/	4228	A	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	40	
/TINA M WONG/ Primary Examiner, Art Unit 2874	24 November 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3, 6

U.S. Patent and Trademark Office — Part of Paper No.: 20211124

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/370,057	TAKANO et al.
	Examiner	**Art Unit**
	TINA M WONG	2874

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G02B6/42	/	6	/	42
G02B6/38	/	6	/	38

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	40	
/TINA M WONG/ Primary Examiner, Art Unit 2874	24 November 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3, 6

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/370,057	TAKANO et al.
	Examiner	**Art Unit**
	TINA M WONG	2874

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1	9	10	23	19	32	28	33	37						
1	2	10	11	24	20	39	29	34	38						
2	3	20	12	25	21	40	30	35	39						
3	4	21	13	26	22	14	31	36	40						
4	5	11	14	27	23	15	32	37	41						
5	6	22	15	28	24	16	33	38	42						
6	7	12	16	29	25	17	34								
7	8	13	17	30	26	18	35								
8	9		18	31	27	19	36								

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	40	
/TINA M WONG/ Primary Examiner, Art Unit 2874	24 November 2021	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	3, 6

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/370,057	TAKANO et al.
	Examiner	Art Unit
	TINA M WONG	2874

CPC - Searched*		
Symbol	Date	Examiner
G02B 6/42, 6/38 (See 17/327,197 Related Case)	11/24/2021	tmw

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
PE2E Searched, Related searches (16/414,546 & 17/327,197) Updated	11/02/2021	tmw
PE2E Search Updated	11/24/2021	tmw
Related Searches Updated	11/24/2021	tmw
Inventor and Assignee Searched	11/24/2021	tmw

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
	text searched	11/24/2021	tmw

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L1	343	senko.as.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:56 PM
L2	112	takano.in. AND chang.in.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:57 PM
L3	59	1 AND 2	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:57 PM
L4	0	3 AND (latch WITH depressible).clm. AND (elongate WITH arm).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:57 PM
L5	0	3 AND (latch WITH depressible).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:59 PM
L6	1	1 AND (latch WITH depressible).clm. AND (elongate WITH arm).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 05:59 PM
L7	1	"20130322825".pn.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 06:15 PM
L8	7	3 AND (wong.xp.)	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/01 07:09 PM
L9	33	("5418875" | "6095862" | "6240228" | "6250817" | "6450695" | "7150567" | "7712970" | "9448370" | "9829653" | "20020168148" | "20060193562" | "20070149028" | "20080131055" | "20090047818" | "20090220227" | "20100054668" | "20100061069" | "20110058773" | "20120057824" | "20150198766" | "20150241644" | "20150293310" | "20160139343" | "20160139344" | "20170205587" | "20170205590" | "20170205591" | "20170212316" | "20170276887" | "20170343740" | "20190154924").pn. OR ("10838152").urpn. AND (PGPB | USPT | USOC).dbnm.	(US-PGPUB; USPAT; USOCR)	OR	ON	ON	2021/11/01 07:10 PM

L10	2	L3 AND @pd>"20211101"	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/24 11:30 AM
L11	0	L9 AND @pd>"20211101"	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/24 11:31 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	5	(latch WITH depressible).clm. AND (elongate WITH arm).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2021/11/24 11:31 AM

Bibliographic Data

Application No: 17/370,057

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /TINA M WONG/ Examiner's Signature | Initials

Title: ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
07/08/2021	385	2874	
RULE			

APPLICANTS

Senko Advanced Components, Inc., Marlborough, MA, UNITED STATES

INVENTORS

Kazuyoshi TAKANO, Tokyo, JAPAN

Jimmy Jun-Fu CHANG, Worcester, MA, UNITED STATES

CONTINUING DATA

This application is a CON of 17327197 05/21/2021

17327197 is a CON of 17090855 11/05/2020

17090855 is a CON of 16414546 05/16/2019 PAT 10859778

FOREIGN APPLICATIONS

IF REQUIRED, FOREIGN LICENSE GRANTED**

08/26/2021

**** SMALL ENTITY ****

STATE OR COUNTRY

JAPAN

ADDRESS

FILING FEE RECEIVED

$3,430

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Kazuyoshi		TAKANO	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Country of Residence	
Tokyo		JP

Mailing Address of Inventor:

Address 1	8F Konko Building, 1-1-16 Kanda, Izumi-cho
Address 2	Chiyoda-ku
City	Tokyo
State/Province	
Postal Code	101-0024
Country	JP

Inventor 2 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jimmy	Jun-Fu	CHANG	

Residence Information (Select One) ● US Residency ◯ Non US Residency Active US Military Service

City	State/Province	Country of Residence
Worcester	MA	US

Mailing Address of Inventor:

Address 1	62 Upland Street
Address 2	
City	Worcester
State/Province	MA
Postal Code	01607
Country	US

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	152878		
Email Address	PATENTS@SENKO.COM	Add Email	Remove Email
Email Address	stl.uspatents@stinson.com	Add Email	Remove Email

Application Information:

Title of the Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING		
Attorney Docket Number	S09100US61	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	65	**Suggested Figure for Publication (if any)**	52

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Customer Number	152878

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	17327197	2021-05-21
Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
17327197	Continuation of	17090855	2020-11-05
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
17090855	Continuation of	16414546	2019-05-16	10859778	2020-12-08

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16414546	Claims benefit of provisional Continuation	16388053	2019-04-18
Prior Application Status	Patented		Remove

Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
16388053	Continuation of	16035691	2018-07-15	10281668	2019-05-07

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62588276	2017-11-17
Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62549655	2017-08-24

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Prior Application Status	Expired		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
16035691	Claims benefit of provisional	62532710	2017-07-14

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Senko Advanced Components, Inc.		
Mailing Address Information For Applicant:			
Address 1	450 Donald Lynch Blvd, Unit D		
Address 2			
City	Marlborough	**State/Province**	MA
Country	US	Postal Code	01752
Phone Number	5084819999	Fax Number	5084817676
Email Address	patents@senko.com		

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	Senko Advanced Components, Inc.

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	450 Donald Lynch Blvd, Unit D		
Address 2			
City	Marlborough	**State/Province**	MA
Country i	US	Postal Code	01752
Phone Number	508-481-9999	Fax Number	508-481-7676
Email Address	patents@senko.com		

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Jonathan Pollmann/			Date (YYYY-MM-DD)	2021-12-16
First Name	Jonathan	Last Name	Pollmann	Registration Number	71,702

Additional Signature may be generated within this form by selecting the Add button. Add

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	S09100US61
	Application Number	
Title of Invention	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING	

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
17/370,057	**12/16/2021 05:17:28 PM ET**	**S09100US61**

Title of Invention

ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	1025	FILED BY	Meagan Fitzpatrick
PATENT CENTER #	60448547	FILING DATE	07/08/2021
CUSTOMER #	152878	FIRST NAMED INVENTOR	Kazuyoshi TAKANO
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Jonathan Pollmann

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
SecondSupplementalADS.PDF	9	Application Data Sheet	1488 KB

Warning: The attached file contains comments or annotations. Comments are not recommended and may cause processing problems with the document. This is not a USPTO supplied ADS fillable form. Data in the form cannot be automatically loaded to other USPTO systems.

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)

SecondSupplementalADS.PDF 828603D7458B8BB36F38D38B6F425DDDC7D30D05D93A86662
22E148027469B7B516CC58AA5B30133B4855F29BCC010AD454
F7CBEE4564DC9F49C21ED45EC56E4

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/370,057	07/08/2021	2874	3720	S09100US61	30	2

CONFIRMATION NO. 1025

CORRECTED FILING RECEIPT

152878
Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

OC000000130560889

Date Mailed: 12/20/2021

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Kazuyoshi TAKANO, Tokyo, JAPAN;
Jimmy Jun-Fu CHANG, Worcester, MA;

Applicant(s)

Senko Advanced Components, Inc., Marlborough, MA;

Assignment For Published Patent Application

Senko Advanced Components, Inc., Marlborough, MA

Power of Attorney: The patent practitioners associated with Customer Number 152878

Domestic Priority data as claimed by applicant

This application is a CON of 17/327,197 05/21/2021
which is a CON of 17/090,855 11/05/2020
which is a CON of 16/414,546 05/16/2019 PAT 10859778
which is a CON of 16/388,053 04/18/2019 PAT 11169338
which is a CON of 16/035,691 07/15/2018 PAT 10281668
which claims benefit of 62/588,276 11/17/2017
and claims benefit of 62/549,655 08/24/2017
and claims benefit of 62/532,710 07/14/2017

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 08/26/2021

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/370,057**

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

Preliminary Class

385

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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Electronic Acknowledgement Receipt

EFS ID:	44886344
Application Number:	17370057
International Application Number:	
Confirmation Number:	1025
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi TAKANO
Customer Number:	152878
Filer:	Jonathan G. Pollmann/Meagan Fitzpatrick
Filer Authorized By:	Jonathan G. Pollmann
Attorney Docket Number:	S09100US61
Receipt Date:	01-FEB-2022
Filing Date:	08-JUL-2021
Time Stamp:	10:38:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment after Notice of Allowance (Rule 312)	Amendment.pdf	129767 8263ef012668c72078cc1036a0d7a59adead4645	no	10
Warnings:					

Information:	
Total Files Size (in bytes):	129767

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National Stage of an International Application under 35 U.S.C. 371

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New International Application Filed with the USPTO as a Receiving Office

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Kazuyoshi Takano Art Unit: 2874
Serial No: 17/370,057
Filed: July 8, 2021
Confirmation No: 1025
For: Ultra-small form factor optical connectors used as part of a reconfigurable outer housing
Examiner: Tina Wong

Amendment Under 37 CFR 1.312

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

COMMISSIONER:

In response to the Notice of Allowance mailed December 9, 2021, pursuant to 37 CFR 1.312, please enter the following amendments and consider the following remarks.

Amendments to the claims begin on page 2.

Applicant's Remarks begin on page 11 of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (Cancelled).

2. (Previously presented) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

3. (Original) The optical fiber connector as set forth in claim 2, wherein the guide defines a groove extending along the longitudinal axis.

4. (Original) The optical fiber connector as set forth in claim 3, wherein the elongate arm is slidably received in the groove.

5. (Previously presented) The optical fiber connector as set forth in claim 2, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

6. (Currently amended) The optical fiber connector as set forth in claim 5, wherein the front end portion of the elongate arm defines an opening.

7. (Original) The optical fiber connector as set forth in claim 6, wherein the depressible latch is received in the opening.

8. (Currently amended) The optical fiber connector as set forth in claim 7, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch.

9. (Original) The optical fiber connector as set forth in claim 8, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

10. (Original) The optical fiber connector as set forth in claim 9, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

11. (Currently amended) The optical fiber connector as set forth in claim 10, wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface.

12. (Currently amended) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

wherein the front end portion of the elongate arm defines an opening;

wherein the depressible latch is received in the opening;

wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch;

wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis;

wherein the front end portion of the elongate arm includes an edge defining a front end of the opening;

wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface;

wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

13. (Previously presented) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

the optical fiber connector further comprising a push/pull tab extending from the rear end portion of the elongate arm.

14. (Previously presented) The optical fiber connector as set forth in claim 2, wherein the connector housing includes a front body and a back body.

15. (Previously presented) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing includes a front body and a back body;

wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

16. (Original) The optical fiber connector as set forth in claim 14, further comprising a single cable boot extending rearward from the back body.

17. (Previously presented) The optical fiber connector as set forth in claim 2, further comprising a single cable boot extending rearward from the connector housing.

18. (Cancelled)

19. (Previously presented) An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced

apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

20. (Original) The optical fiber connector as set forth in claim 19, wherein the guide defines a groove extending along the longitudinal axis.

21. (Original) The optical fiber connector as set forth in claim 20, wherein the elongate arm is slidably received in the groove.

22. (Previously presented) The optical fiber connector as set forth in claim 19, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

23. (Currently amended) The optical fiber connector as set forth in claim 22, wherein the front end portion of the elongate arm defines an opening.

24. (Original) The optical fiber connector as set forth in claim 23, wherein the depressible latch is received in the opening.

25. (Currently amended) The optical fiber connector as set forth in claim 24, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch.

26. (Original) The optical fiber connector as set forth in claim 25, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

27. (Original) The optical fiber connector as set forth in claim 26, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

28. (Currently amended) The optical fiber connector as set forth in claim 27, wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface.

29. (Currently amended) An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

wherein the front end portion of the elongate arm defines an opening;

wherein the depressible latch is received in the opening;

wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch;

wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis;

wherein the front end portion of the elongate arm includes an edge defining a front end of the opening;

wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface;

wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

30. (Previously presented) An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

further comprising a push/pull tab extending from the rear end portion of the elongate arm.

31. (Previously presented) The optical fiber connector as set forth in claim 11, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

32. (Previously presented) The optical fiber connector as set forth in claim 31, wherein the guide defines a groove extending along the longitudinal axis.

33. (Previously presented) The optical fiber connector as set forth in claim 32, wherein the elongate arm is slidably received in the groove.

34. (Previously presented) The optical fiber connector as set forth in claim 32, wherein the connector housing includes a front body and a back body.

35. (Previously presented) The optical fiber connector as set forth in claim 34, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

36. (Previously presented) The optical fiber connector as set forth in claim 35, further comprising a single cable boot extending rearward from the connector housing.

37. (Previously presented) The optical fiber connector as set forth in claim 28, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

38. (Previously presented) The optical fiber connector as set forth in claim 37, wherein the guide defines a groove extending along the longitudinal axis.

39. (Previously presented) The optical fiber connector as set forth in claim 38, wherein the elongate arm is slidably received in the groove.

40. (Previously presented) The optical fiber connector as set forth in claim 38, wherein the connector housing includes a front body and a back body.

41. (Previously presented) The optical fiber connector as set forth in claim 40, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

42. (Previously presented) The optical fiber connector as set forth in claim 41, further comprising a single cable boot extending rearward from the connector housing.

REMARKS

By this amendment, claims 6, 8, 11, 12, 23, 25, 28, and 29 are amended. No new matter is added. Claims 2-17 and 19-42 are pending.

The amendments correct a minor editorial error in claims 8, 12, 25, and 29. In particular, the amendments change "the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion" to correctly state that "the depressible latch extends upward along the transverse axis as the depressikurtble latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch."

The amendments also correct a minor editorial error in claims 11, 12, 28, and 29, "depressible latch arm" is replaced with "depressible latch" consistent with the antecedent basis and usage throughout the claim set.

The amendment also provides a clarification to claims 6, 12, 23, and 29 that the claimed opening is defined by the "front end portion of the elongate arm," as opposed to any other "front end portion" recited in the claims.

Entry of this amendment after Notice of Allowance is appropriate under 37 CFR 1.312. The amendment merely corrects minor errors and does not add any new matter or raise any new issues that require further prosectution of the application. Accordingly, acceptance and entry of the amendment is respectfully requested.

Should any other fee be required, the Commissioner is hereby authorized to charge the necessary fee to Deposit Account No. 19-4409.

Respectfully submitted,

/Jonathan Pollmann/

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UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

152878 7590 02/08/2022

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

EXAMINER	
WONG, TINA MEI SENG	

ART UNIT	PAPER NUMBER
2874	

NOTIFICATION DATE	DELIVERY MODE
02/08/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
patents@senko.com
stl.uspatents@stinson.com

Response to Rule 312 Communication	Application No.	Applicant(s)	
	17/370,057	TAKANO et al.	
	Examiner	Art Unit	AIA (FITF) Status
	TINA M WONG	2874	Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☑ The amendment filed on 01 February 2022 under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☑ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.

Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/TINA M WONG/
Primary Examiner, Art Unit 2874

S09100US61

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: Kazuyoshi Takano Art Unit: 2874
Serial No: 17/370,057
Filed: July 8, 2021
Confirmation No: 1025
For: Ultra-small form factor optical connectors used as part of a reconfigurable outer housing
Examiner: Tina Wong

Amendment Under 37 CFR 1.312

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

OK TO ENTER: /T.M.W./
02/03/2022

COMMISSIONER:

In response to the Notice of Allowance mailed December 9, 2021, pursuant to 37 CFR 1.312, please enter the following amendments and consider the following remarks.

Amendments to the claims begin on page 2.

Applicant's Remarks begin on page 11 of this paper.

Amendments to the Claims

This listing of claims will replace all prior versions of claims in the application:

LISTING OF CLAIMS:

1. (Cancelled).

2. (Previously presented) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

3. (Original) The optical fiber connector as set forth in claim 2, wherein the guide defines a groove extending along the longitudinal axis.

4. (Original) The optical fiber connector as set forth in claim 3, wherein the elongate arm is slidably received in the groove.

5. (Previously presented) The optical fiber connector as set forth in claim 2, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

6. (Currently amended) The optical fiber connector as set forth in claim 5, wherein the front end portion of the elongate arm defines an opening.

7. (Original) The optical fiber connector as set forth in claim 6, wherein the depressible latch is received in the opening.

8. (Currently amended) The optical fiber connector as set forth in claim 7, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch.

9. (Original) The optical fiber connector as set forth in claim 8, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

10. (Original) The optical fiber connector as set forth in claim 9, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

11. (Currently amended) The optical fiber connector as set forth in claim 10, wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface.

12. (Currently amended) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

wherein the front end portion of the elongate arm defines an opening;

wherein the depressible latch is received in the opening;

wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch;

wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis;

wherein the front end portion of the elongate arm includes an edge defining a front end of the opening;

wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface;

wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

13. (Previously presented) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

the optical fiber connector further comprising a push/pull tab extending from the rear end portion of the elongate arm.

14. (Previously presented) The optical fiber connector as set forth in claim 2, wherein the connector housing includes a front body and a back body.

15. (Previously presented) An optical fiber connector comprising:

first and second optical fiber ferrules;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing holding the first and second optical fiber ferrules such that the first and second optical fiber ferrules are exposed through the front end portion for making an optical connection and the first and second optical fiber ferrules are spaced apart from one another along the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing includes a front body and a back body;

wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

16. (Original) The optical fiber connector as set forth in claim 14, further comprising a single cable boot extending rearward from the back body.

17. (Previously presented) The optical fiber connector as set forth in claim 2, further comprising a single cable boot extending rearward from the connector housing.

18. (Cancelled)

19. (Previously presented) An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced

apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the connector housing comprises a guide connecting the elongate arm to the optical fiber connector.

20. (Original) The optical fiber connector as set forth in claim 19, wherein the guide defines a groove extending along the longitudinal axis.

21. (Original) The optical fiber connector as set forth in claim 20, wherein the elongate arm is slidably received in the groove.

22. (Previously presented) The optical fiber connector as set forth in claim 19, wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis.

23. (Currently amended) The optical fiber connector as set forth in claim 22, wherein the front end portion of the elongate arm defines an opening.

24. (Original) The optical fiber connector as set forth in claim 23, wherein the depressible latch is received in the opening.

25. (Currently amended) The optical fiber connector as set forth in claim 24, wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch.

26. (Original) The optical fiber connector as set forth in claim 25, wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis.

27. (Original) The optical fiber connector as set forth in claim 26, wherein the front end portion of the elongate arm includes an edge defining a front end of the opening.

28. (Currently amended) The optical fiber connector as set forth in claim 27, wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface.

29. (Currently amended) An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

wherein the front end portion of the elongate arm defines an opening;

wherein the depressible latch is received in the opening;

wherein the depressible latch has a front end portion and rear end portion spaced apart along the longitudinal axis and wherein the depressible latch extends upward along the transverse axis as the ~~elongate arm~~ depressible latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch;

wherein the rear end portion of the depressible latch is spaced apart above the top portion of the connector housing along the transverse axis;

wherein the front end portion of the elongate arm includes an edge defining a front end of the opening;

wherein the depressible latch ~~arm~~ has an upper surface, the edge opposing the upper surface;

wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

30. (Previously presented) An optical fiber connector comprising:

a multi-fiber ferrule configured to terminate a plurality of optical fibers;

a connector housing having a front end portion and a rear end portion spaced apart along a longitudinal axis, the connector housing comprising a top portion and a bottom portion spaced apart along a transverse axis perpendicular to the longitudinal axis, the connector housing being configured to hold the multi-fiber ferrule such that the multi-fiber ferrule is exposed through the front end portion for making an optical connection and the plurality of optical fibers are spaced apart from one another in a row extending parallel to the transverse axis,

a depressible latch above the top portion of the connector housing; and

an elongate arm connected to the connector housing above the top portion and configured to be pulled to actuate the depressible latch;

wherein the elongate arm comprises a front end portion and a rear end portion spaced apart along the longitudinal axis;

further comprising a push/pull tab extending from the rear end portion of the elongate arm.

31. (Previously presented) The optical fiber connector as set forth in claim 11, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

32. (Previously presented) The optical fiber connector as set forth in claim 31, wherein the guide defines a groove extending along the longitudinal axis.

33. (Previously presented) The optical fiber connector as set forth in claim 32, wherein the elongate arm is slidably received in the groove.

34. (Previously presented) The optical fiber connector as set forth in claim 32, wherein the connector housing includes a front body and a back body.

35. (Previously presented) The optical fiber connector as set forth in claim 34, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

36. (Previously presented) The optical fiber connector as set forth in claim 35, further comprising a single cable boot extending rearward from the connector housing.

37. (Previously presented) The optical fiber connector as set forth in claim 28, wherein the elongate arm is configured to be pulled rearward along the longitudinal axis with respect to the connector housing whereby the edge slides longitudinally along the upper surface to depress the depressible latch.

38. (Previously presented) The optical fiber connector as set forth in claim 37, wherein the guide defines a groove extending along the longitudinal axis.

39. (Previously presented) The optical fiber connector as set forth in claim 38, wherein the elongate arm is slidably received in the groove.

40. (Previously presented) The optical fiber connector as set forth in claim 38, wherein the connector housing includes a front body and a back body.

41. (Previously presented) The optical fiber connector as set forth in claim 40, wherein the front body includes a recess and the back body includes a protrusion received in the recess to connect the back body to the front body.

42. (Previously presented) The optical fiber connector as set forth in claim 41, further comprising a single cable boot extending rearward from the connector housing.

REMARKS

By this amendment, claims 6, 8, 11, 12, 23, 25, 28, and 29 are amended. No new matter is added. Claims 2-17 and 19-42 are pending.

The amendments correct a minor editorial error in claims 8, 12, 25, and 29. In particular, the amendments change "the depressible latch extends upward along the transverse axis as the elongate arm extends along the longitudinal axis from the front end portion to the rear end portion" to correctly state that "the depressible latch extends upward along the transverse axis as the depressikurtble latch extends along the longitudinal axis from the front end portion to the rear end portion of the depressible latch."

The amendments also correct a minor editorial error in claims 11, 12, 28, and 29, "depressible latch arm" is replaced with "depressible latch" consistent with the antecedent basis and usage throughout the claim set.

The amendment also provides a clarification to claims 6, 12, 23, and 29 that the claimed opening is defined by the "front end portion of the elongate arm," as opposed to any other "front end portion" recited in the claims.

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Should any other fee be required, the Commissioner is hereby authorized to charge the necessary fee to Deposit Account No. 19-4409.

Respectfully submitted,

/Jonathan Pollmann/

Jonathan G. Pollmann, Reg. No. 71,702
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

152878 7590 02/09/2022

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

EXAMINER	
WONG, TINA MEI SENG	

ART UNIT	PAPER NUMBER
2874	

NOTIFICATION DATE	DELIVERY MODE
02/09/2022	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

eofficeaction@appcoll.com
patents@senko.com
stl.uspatents@stinson.com

Applicant-Initiated Interview Summary	**Application No.** 17/370,057	**Applicant(s)** TAKANO et al.		
	Examiner TINA M WONG	**Art Unit** 2874	**AIA (First Inventor to File) Status** Yes	**Page** 1 of 1

All Participants (applicant, applicants representative, PTO personnel)	**Title**	**Type**
TINA M WONG	Primary Examiner	Telephonic
Jonathan Pollman	Attorney	

Date of Interview: 28 January 2022

Issues Discussed:

Other

The Amendment received 11/11/2021 appears to be entered as "Informal or Non-Responsive". However , Applicant has not received a deficiency notice. The Examiner has contacted the Troubleshooter (TSB2800) and this appears to be a coding error. The Amendment has been re-coded as an entered amendment.

/TINA M WONG/ Primary Examiner, Art Unit 2874	

Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

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Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

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152878 7590 12/09/2021

Senko Advanced Components, Inc.
450 Donald Lynch Blvd
Unit D
Marlborough, MA 01752

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	07/08/2021	Kazuyoshi TAKANO	S09100US61	1025

TITLE OF INVENTION: ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$600	$0.00	$0.00	$600	03/09/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
WONG, TINA MEI SENG	2874	385-078000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Senko Advanced Components, Inc.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): 450 Donald Lynch Blvd, Marlborough, MA 01752

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual XXX Corporation or other private group entity ❑ Government

4a. Fees submitted: XXX Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

XXX ❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

XXX ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 603512

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Qi Zhang/ Date 03/09/2022

Typed or printed name Qi Zhang Registration No. L1394

Electronic Patent Application Fee Transmittal

Application Number:	17370057
Filing Date:	08-Jul-2021
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi TAKANO
Filer:	Qi Zhang /Yoko Tanaka
Attorney Docket Number:	S09100US61

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	2501	1	600	600

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**600**

Electronic Acknowledgement Receipt

EFS ID:	45183386
Application Number:	17370057
International Application Number:	
Confirmation Number:	1025
Title of Invention:	ULTRA-SMALL FORM FACTOR OPTICAL CONNECTORS USED AS PART OF A RECONFIGURABLE OUTER HOUSING
First Named Inventor/Applicant Name:	Kazuyoshi TAKANO
Customer Number:	152878
Filer:	Qi Zhang /Yoko Tanaka
Filer Authorized By:	Qi Zhang
Attorney Docket Number:	S09100US61
Receipt Date:	09-MAR-2022
Filing Date:	08-JUL-2021
Time Stamp:	12:51:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$600
RAM confirmation Number	E202239C51233038
Deposit Account	
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	17370057PartB.pdf	110286 3d03e0929a33305ec69953bedfbc6ba53da9b5ce	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	38170 9c23428929c4100ca8b77c0ac55344523e093acb	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	148456		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17370057
	Filing Date	2021-07-08
	First Named Inventor	Kazuyoshi TAKANO
	Art Unit	2883
	Examiner Name	TBD
	Attorney Docket Number	S09100US61

	50	20070243749	A1	2007-10-18	Wu	
	51	20080008430	A1	2008-01-10	Kewitsch	
	52	20080044137	A1	2008-02-21	Luther et al.	
	53	20080069501	A1	2008-03-20	Mudd et al.	
	54	20080101757	A1	2008-05-01	Lin et al.	
	55	20080226237	A1	2008-09-18	O'Rioreden et al.	
	56	20080267566	A1	2008-10-30	En Lin	
Change(s) applied to document. /P.H./ 12/21/2021	57	20090222457	A1	09/2009 ~~2009-01-22~~	Gallant ~~de Jong et al.~~	
	58	20090028507	A1	2009-01-29	Jones et al.	
	59	20090196555	A1	2009-08-06	Lin et al.	
	60	20090214162	A1	2009-08-27	O'Riorden et al.	

ALL REFERENCES CONSIDERED EXCEPT 372 WHERE LINED THROUGH. /T.M.W./

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	17370057
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	Art Unit	2883
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	Attorney Docket Number	S09100US61

	42	9829645		2017-11-28	Good	
	43	9880361		2018-01-30	Childers	
	44	9946035		2018-04-17	Gustafson	
	45	9971103		2018-05-15	de Jong et al.	
	46	10031296		2018-07-24	Good	
	47	4979792		1990-12-25	Weber	
	48	5011025		1991-08-20	Haitmanek	
Change(s) applied to document, /P.H./ 12/21/2021	49	5265181		11/1993 ~~1991-11-23~~	Chang	
	50	5289554		1994-02-22	Cubukciyan et al.	
	51	5335301		1994-08-02	Newman et al.	
	52	5521997		1996-05-28	Rovenolt et al.	

ALL REFERENCES CONSIDERED EXCEPT 1373 WHERE LINED THROUGH. /T.M.W./

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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/370,057	04/19/2022	11307369	S09100US61	1025

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ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

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Jimmy Jun-Fu CHANG, Worcester, MA;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Senko Advanced Components, Inc., Marlborough, MA;

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