UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : RE49,287 E
APPLICATION NO. : 17/020359
DATED : November 8, 2022
INVENTOR(S) : Chou Hsien Tsai

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims

• At Column 25, Line 24, Claim 67, please delete “coveting” and insert -- covering --, therefore.

Signed and Sealed this
Twentieth Day of December, 2022

Katherine Kelly Vidal

Katherine Kelly Vidal
Director of the United States Patent and Trademark Office

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: Chou Hsien Tsai	Application No.: 17/020,359
Patent No.: RE49,287	Filed: September 14, 2020
Issued: November 8, 2022	Examiner: Christopher E. LEE
Confirmation No.: 8163	Art Unit: 3992

Atty. File No.: 10186PAT-1-REI

For: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

REQUEST FOR CERTIFICATE OF CORRECTION OF PATENT FOR OFFICE'S MISTAKE (37 C.F.R. §1.322)

Attn: Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Commissioner:

This is a request for a Certificate of Correction under 37 C.F.R. 1.322. Attached is form PTO/SB/44. Applicants have determined that there was an error in the claims of the issued patent which was the mistake of the Office. The correction should read as follows:

- At Column 25, line 24, claim 67, please delete "coveting" and insert -- covering --, therefore.

Applicants believe no fees or petitions are required. However, if any such petitions or fees are necessary, the Commissioner is hereby authorized to charge to deposit account number 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of

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time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby petitioned.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: November 14, 2022

By: /Jason H. Vick/

Jason H. Vick
Reg. No. 45,285
1560 Broadway, Suite 1200
Denver, Colorado 80202
Telephone: 303-863-9700
jvick@sheridanross.com

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PTO/SB/44 (09-07)
Approved for use through 03/31/2023. OMB 0651-0033
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 displays a valid OMB control number.
(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : RE49,287

APPLICATION NO.: 17/020,359

ISSUE DATE : November 8, 2022

INVENTOR(S) : Chou Hsien Tsai

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

- At Column 25, line 24, claim 67, please delete "coveting" and insert -- covering --, therefore.

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Jason H. Vick / Sheridan Ross, PC
1560 Broadway, Suite 1200
Denver, CO 80202

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. 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 1.0 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: Attention Certificate of Corrections Branch, 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.

Electronic Acknowledgement Receipt

EFS ID:	47015322
Application Number:	17020359
International Application Number:	
Confirmation Number:	8163
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
Filer:	Jason Vick/Joanne Vos
Filer Authorized By:	Jason Vick
Attorney Docket Number:	10186PAT-1-REI
Receipt Date:	14-NOV-2022
Filing Date:	14-SEP-2020
Time Stamp:	12:15:33
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	Request for Certificate of Correction	Request_for_Certificate_of_Correction.pdf	205038 7506968911ec8e1827b1a10e6ad674e11cc8829c	no	3

Warnings:

Information:	
Total Files Size (in bytes):	205038

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.

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 NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/020,359	11/08/2022	RE49287	10186PAT-1-REI	8163

22442 7590 10/19/2022

Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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):

Chou Hsien Tsai, New Taipei City, TAIWAN;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

KIWI CONNECTION, LLC, Waco, TX, Assignee (with 37 CFR 1.172 Interest);

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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)

22442 7590 08/17/2022
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

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.

Joanne Vos	(Typed or printed name)
/Joanne Vos/	(Signature)
September 28, 2022	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/020,359	09/14/2020	Chou Hsien Tsai	10186PAT-1-REI	8163

TITLE OF INVENTION: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

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	11/17/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, CHRISTOPHER E	3992	439-607170

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/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 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 Sheridan Ross, PC
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: KIWI CONNECTION, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): WACO, TEXAS

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. 19-1970

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 /Jason H. Vick/ Date September 28, 2022

Typed or printed name Jason H. Vick Registration No. 45,285

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: Chou Hsien Tsai	)	Group Art Unit: 3992
Application No.: 17/020,359	)	Examiner: LEE, CHRISTOPHER E
Filed: September 14, 2020	)	Confirmation No.: 8163
Atty. File No.: 10186PAT-1-REI	)	

For: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Commissioner:

Applicant submits this Comments on Statement of Reasons for Allowance to address the Notice of Allowability ("Notice") having a mailing date of August 17, 2022.

In the Notice, the Examiner's stated reasons for allowance were that:

> *With respect to claims 34-66*, the claim limitations of the respective claims 34 and 50 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.
>
> The claims 35-49, 63, and 64 are dependent claims of the claim 34.

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The claims 51-62, 65, and 66 are dependent claims of the claim 50.

With respect to claim 67, the claim limitations of the claim 67 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that the at least one elastic sheet comprising two inner elastic sheets disposed on inner sides of the two outer elastic sheets, and the two inner elastic sheets respectively rest against top and bottom surfaces on one side of the tongue.

With respect to claim 68, the claim limitations of the claim 68 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that a front end of the first contact has a first guide-in sheet, a front end of the second contact has a second guide-in sheet, the first contact and the second contact are vertically aligned with each other, and the first guide-in sheet and second guide-in sheet are staggered in a left to right direction..

Applicant acknowledges Examiner's statements of Reasons for Allowance and agrees that the claimed subject matter is patentable. However, Applicant takes no position regarding the Reasons for Allowance presented by the Examiner other than the positions Applicant may have previously taken during prosecution. Therefore, the Reasons for Allowance should not be attributed to Applicant for any reason or as an indication of the bases for Applicant's belief that the claims are patentable. Furthermore, Applicant respectfully asserts that there may be additional or alternative reasons for patentability of the claimed subject matter not explicitly stated in this record and Applicant does not waive its rights to such arguments by not further addressing such reasons herein.

While the stated Reasons for Allowance may be a stated reason for allowing some independent claims, Applicant submits that some independent claims may have a different reason for allowance and that some independent claims may have other reasons for allowance.

Specifically, the prior art fails to teach the specific combination of features as recited in the independent claims 34, 50, 67, and 68

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Although the Applicant believes that no fees are due for filing this Comments on Statement of Reasons for Allowance, please charge any fees deemed necessary to Deposit Account No. 19-1970.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: September 28, 2022

By: /Jason H. Vick/

Jason H. Vick,
Reg. No. 45,285
1560 Broadway, Suite 1200
Denver, Colorado 80202
Telephone: 303-863-9700
jvick@sheridanross.com

Samsung, EX1019, p. 11

Electronic Patent Application Fee Transmittal

Application Number:	17020359
Filing Date:	14-Sep-2020
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Filer:	Jason Vick/Joanne Vos
Attorney Docket Number:	10186PAT-1-REI

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:				
REISSUE ISSUE FEE	2511	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:	46714174
Application Number:	17020359
International Application Number:	
Confirmation Number:	8163
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
Filer:	Jason Vick/Joanne Vos
Filer Authorized By:	Jason Vick
Attorney Docket Number:	10186PAT-1-REI
Receipt Date:	28-SEP-2022
Filing Date:	14-SEP-2020
Time Stamp:	16:16:36
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	E20229RG17242866
Deposit Account	191970
Authorized User	Joanne Vos
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

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)	ISSUE_FEE_PAYMENT_10186PAT-1-REI.pdf	1610019 402ac6d25f6b3d356aefd2655a5c957d8cac89de	no	1
Warnings:					
Information:					
2	Post Allowance Communication - Incoming	Comments_on_Reason_for_Allowance.pdf	95853 e9a796d66bf9a3962076ada7877db3b0be085042	no	3
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	37915 b744db4f487f318db62b632ee4b22b6b552a0725	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1743787		

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.

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

22442 7590 08/17/2022

Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

EXAMINER	
LEE, CHRISTOPHER E	
ART UNIT	PAPER NUMBER
3992	

DATE MAILED: 08/17/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/020,359	09/14/2020	Chou Hsien Tsai	10186PAT-1-REI	8163

TITLE OF INVENTION: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

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	11/17/2022

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. 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)

22442 7590 08/17/2022

Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

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.
17/020,359	09/14/2020	Chou Hsien Tsai	10186PAT-1-REI	8163

TITLE OF INVENTION: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

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	11/17/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, CHRISTOPHER E	3992	439-607170

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/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 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. _____

Samsung, EX1019, p. 17

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 NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/020,359	09/14/2020	Chou Hsien Tsai	10186PAT-1-REI	8163

22442 7590 08/17/2022

Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

EXAMINER	
LEE, CHRISTOPHER E	
ART UNIT	PAPER NUMBER
3992	

DATE MAILED: 08/17/2022

Determination of Patent Term Extension or Adjustment under 35 U.S.C. 154 (b)

A reissue patent is for "the unexpired part of the term of the original patent." See 35 U.S.C. 251. Accordingly, the above-identified reissue application is not eligible for Patent Term Extension or Adjustment under 35 U.S.C. 154(b).

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.

Samsung, EX1019, p. 18

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.

Reissue Application ***Notice of Allowability***	**Application No.** 17/020,359	**Applicant(s)** Tsai, Chou Hsien	
	Examiner Christopher E Lee	**Art Unit** 3992	**AIA (FITF) Status** No

-- 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 Response filed on July 8, 2022.
   ☐ 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 34-68 . 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. 12/759,408 .
   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 7/8/2022.
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 _____.

/Christopher E. Lee/
Primary Examiner, Art Unit 3992

DETAILED ACTION

Examination of Reissue Application

1. The present application, filed on June 19, 2018, is for a continuation reissue examination for United States Patent Number US RE46,930 E and also for a reissue examination of United States Patent Number 8,619,241 B2, which issued to Mimeault (hereinafter "the '241 Patent").

Receipt Acknowledgement

2. Receipt is acknowledged of the Response/Amendment (hereinafter "the Response") filed on July 8, 2022.

Original claims 1-33 have been canceled; and new claims 34-68 have been added since this reissue application was filed. Currently, the claims 34-68 are subject to the examination of this reissue application.

Information Disclosure Statement

3. The information disclosure statement was filed on July 8, 2022. Where patents, publications, and other such items of information are submitted by the reissue applicant in compliance with the requirements of the rules 37 CFR § 1.97 and 37 CFR § 1.98 have been considered. See MPEP § 2256.

Examiner's Statement of Reasons for Allowance

4. Claims 34-68 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter over the prior art of record:

With respect to claims 34-66, the claim limitations of the respective claims 34 and 50 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the

connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.

The claims 35-49, 63, and 64 are dependent claims of the claim 34.

The claims 51-62, 65, and 66 are dependent claims of the claim 50.

With respect to claim 67, the claim limitations of the claim 67 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that the at least one elastic sheet comprising two inner elastic sheets disposed on inner sides of the two outer elastic sheets, and the two inner elastic sheets respectively rest against top and bottom surfaces on one side of the tongue.

With respect to claim 68, the claim limitations of the claim 68 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that a front end of the first contact has a first guide-in sheet, a front end of the second contact has a second guide-in sheet, the first contact and the second contact are vertically aligned with each other, and the first guide-in sheet and second guide-in sheet are staggered in a left to right direction..

Any comments considered necessary by the reissue 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."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Christopher E. Lee whose telephone number is (571) 272-3637. The Examiner can normally be reached on 9:00am to 5:00pm. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew J. Fischer can be reached on (571) 272-6779. The FAX phone number for the organization where this application or proceeding is assigned is (571) 273-9900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://www.uspto.gov/patents/process/status/index.jsp. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Signed:

/Christopher E. Lee/
Christopher E. Lee, Primary Examiner
Central Reexamination Unit/ Art Unit 3992

Conferees:

/MY TRANG TON/
Primary Examiner, Art Unit 3992

/ANDREW J. FISCHER/
Supervisory Patent Examiner, Art Unit 3992

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	Art Unit
	Christopher E Lee	3992

CPC - Searched*		
Symbol	**Date**	**Examiner**
H01R 29/00, 12/58, 27/00, 12/716, 13/658, 13/642	12/6/2021- 12/18/2021	/CEL/
H05K 5/0278; G06K 19/07732	12/6/2021- 12/18/2021	/CEL/
H01R 13/64	07/27/2022	/CEL/
Search Updated	07/27/2022	/CEL/

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
439	217, 218, 660, 541.5, 607.01, 67, 660	12/6/2021- 12/18/2021	/CEL/
361	679.41	12/6/2021- 12/18/2021	/CEL/
Search	Updated	07/27/2022	/CEL/

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

/Christopher E. Lee/ Primary Examiner, Art Unit 3992	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	Art Unit
	Christopher E Lee	3992

Search Notes		
Search Notes	**Date**	**Examiner**
Litigation Search and Review conducted	11/02/2020	/CEL/
Inventor Name Search (PALM) performed	12/02/2021	/CEL/
Review prosecution history of foreign applications TW098112573, TW098117405, TW098210021, TW099100847, and US application 12/759,408.	12/06/2021	/CEL/
H01R 29/00, 12/58, 27/00, 12/716, 13/658, 13/642; H05K 5/0278; G06K 19/07732	12/6/2021- 12/18/2021	/CEL/
439/217, 218, 660, 541.5, 607.01, 67, 660; 361/679.41	12/6/2021- 12/18/2021	/CEL/
Search H01R 13/64 and Updated	07/27/2022	/CEL/

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
218	118, 140	08/10/2022	/CEL/
H01R	27/00, 24/60, 24/62	08/10/2022	/CEL/

/Christopher E. Lee/ Primary Examiner, Art Unit 3992	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	**Art Unit**
	Christopher E Lee	3992

CPC							
Symbol						**Type**	**Version**
H01R	/	27	/	00		F	2013-01-01
H01R	/	24	/	62		I	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	35	
/Christopher E. Lee/ Primary Examiner, Art Unit 3992	10 August 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	34	4 and 5

U.S. Patent and Trademark Office

Part of Paper No.: 20220725

Samsung, EX1019, p. 26

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	**Art Unit**
	Christopher E Lee	3992

INTERNATIONAL CLASSIFICATION				
CLAIMED				
H01H	/	33	/	666

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
218	140

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					
218	118					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	35	
/Christopher E. Lee/ Primary Examiner, Art Unit 3992	10 August 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	34	4 and 5

U.S. Patent and Trademark Office

Part of Paper No.: 20220725

Samsung, EX1019, p. 27

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	**Art Unit**
	Christopher E Lee	3992

☐ 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		10		19		28	37	37	46	46	57	55	51	64
	2		11		20		29	38	38	47	47	58	56	65	65
	3		12		21		30	39	39	48	48	59	57	66	66
	4		13		22		31	40	40	49	49	60	58	67	67
	5		14		23		32	41	41	52	50	61	59	68	68
	6		15		24		33	42	42	53	51	62	60		
	7		16		25	34	34	43	43	54	52	63	61		
	8		17		26	35	35	44	44	55	53	64	62		
	9		18		27	36	36	45	45	56	54	50	63		

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	35	
/Christopher E. Lee/ Primary Examiner, Art Unit 3992	10 August 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	34	4 and 5

U.S. Patent and Trademark Office

Part of Paper No.: 20220725

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	**Art Unit**
	Christopher E Lee	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/03/2022	08/10/2022							
	1	✓	-							
	2	✓	-							
	3	✓	-							
	4	✓	-							
	5	✓	-							
	6	✓	-							
	7	-	-							
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35	35	✓	=							
36	36	✓	=							
37	37	✓	=							
38	38	✓	=							
39	39	✓	=							
40	40	✓	=							
41	41	✓	=							
42	42	✓	=							

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	**Art Unit**
	Christopher E Lee	3992

CLAIM		DATE								
Final	Original	01/03/2022	08/10/2022							
43	43	✓	=							
44	44	✓	=							
45	45	✓	=							
46	46	✓	=							
47	47	✓	=							
48	48	✓	=							
49	49	✓	=							
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63	61	✓	=							
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50	63		=							
51	64		=							
65	65		=							
66	66		=							
67	67		=							
68	68		=							

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United States Patent And Trademark Office **Reissue Terminal Disclaimer Review Form**	**Application No.** 17/020,359	**Art Unit** 3992
	Examiner CHRISTOPHER E LEE	**AIA Status** No

Original Patent Number of Patent to be Reissued is: US 8198563	**The Maintenance fee status is:** ◉ up to date ○ not up to date (Consult with SPRS)

Is there a terminal disclaimer filed and accepted during the prosecution of (i) the current reissue application, (ii) the underlying patent, and/or (iii) reexamination proceeding(s) of the underlying patent?

◉ NO
○ YES (Complete the rest of the form)

The reissue patent is subject to Terminal Disclaimer(s) that was/were:

☐ filed and accepted (DISQ or DISQ.E.FILE) during the prosecution of the current reissue application. (Enter terminal disclaimer(s) filing date(s) below).

1. _____ 2. _____ 3. _____

The underlying patent of the current reissue application is subject to Terminal DIsclaimer(s) that was/were:

☐ accepted (DISQ or DISQ.E.FILE) and of record in the prosecution of the underlying patent and/or reexamination procceeding(s) of the underlying patent. (Enter application/control no(s) and terminal disclaimer(s) filing date(s) below).

1. _____ _____ 2. _____ _____ 3. _____ _____

Bibliographic Data

Application No: 17/020,359

Foreign Priority claimed: ○ Yes ◉ No

35 USC 119 (a-d) conditions met: ☐ Yes ☑ No ☐ Met After Allowance

Verified and Acknowledged: /Christopher E. Lee/ Examiner's Signature | Initials

Title: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
09/14/2020	439	3992	10186PAT-1-REI
RULE			

APPLICANTS

KIWI CONNECTION, LLC, Waco, TX, UNITED STATES

INVENTORS

Chou Hsien Tsai, New Taipei City, TAIWAN

CONTINUING DATA

This application is a REI of 12759408 04/13/2010 PAT 8198563 /CEL/

FOREIGN APPLICATIONS

TAIWAN TW098112573 04/15/2009

TAIWAN TW098117405 05/26/2009 /CEL/

TAIWAN TW098210021 06/05/2009

TAIWAN TW099100847 01/13/2010

IF REQUIRED, FOREIGN LICENSE GRANTED**

09/15/2020

** SMALL ENTITY **

STATE OR COUNTRY

TAIWAN

ADDRESS

Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202
UNITED STATES

FILING FEE RECEIVED

$2,830

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
				Art Unit	3992
				Examiner Name	Christopher E. Lee
Sheet	1	of	1	Attorney Docket Number	10186PAT-1-REI

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-kind Code [2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee of Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/CEL/	1	7628655	12-08-2009	Chen	
/CEL/	2	7731535	06-08-2010	Wan et al.	
/CEL/	3	2007/0173129	07-26-2007	Han	
/CEL/	4	2009/0042421	02-12-2009	Zheng et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]; Number[4]; Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
/CEL/	5	TWM 253969 U	12-21-2004	INVENTEC MULTIMEDIA & TELECOM		(Includes a Machine Translation of the Description and Claims)

OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)		
Examiner Initials*	Cite No.[1]	

Examiner Signature	/Christopher E. Lee/	Date Considered	07/19/2022

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

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L59	16	reversible SAME tongue SAME USB SAME socket	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 09:06 AM
L61	32	(Artificial Intelligence) More Like: US-20060024997-A1 Text: (EP-1784896-A4 OR WO-2006013553-A2 OR EP-1784896-A2 OR KR-20070039956-A OR US-20080274633-A1 OR US-20070010116-A1 OR US-7591657-B2 OR US-7094086-B2 OR JP-2008508694-A OR US-7363947-B2 OR US-20070010115-A1 OR US-7160125-B1 OR US-20070202725-A1 OR CN-101015096-A OR WO-2006013553-A3 OR EP-2095474-A2 OR US-7537471-B2 OR US-20080119076-A1 OR US-20050042930-A1 OR US-20080153352-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	ON	ON	2022/07/27 09:06 AM
L62	60	reversible SAME USB SAME socket	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 09:13 AM
L63	34	reversible SAME USB SAME (plug WITH socket)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 09:14 AM
L66	35	(Artificial Intelligence) More Like: US-8198563-B2 Text: (US-20100267282-A1 OR KR-101177489-B1 OR KR-20100114471-A OR DE-202010017854-U1 OR DE-102010014793-A1 OR JP-2010251319-A OR US-8187039-B2 OR US-20100173530-A1 OR JP-3176945-U OR US-9142926-B2 OR US-20120015561-A1 OR US-20100279520-A1 OR US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	OFF	OFF	2022/07/27 10:20 AM

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		20130005193-A1 OR US-20190006800-A1 OR US-10826254-B2 OR US-9178310-B2 OR US-20190006798-A1 OR US-20210242642-A1 OR US-10680393-B2 OR US-10559932-B2).did.					
L68	1089	reversible SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 10:22 AM
L70	471	reversible SAME USB SAME plug	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 10:57 AM
L73	32	(Artificial Intelligence) More Like: US-20060024997-A1 Text: (EP-1784896-A4 OR WO-2006013553-A2 OR EP-1784896-A2 OR KR-20070039956-A OR US-20080274633-A1 OR US-20070010116-A1 OR US-7591657-B2 OR US-7094086-B2 OR JP-2008508694-A OR US-7363947-B2 OR US-20070010115-A1 OR US-7160125-B1 OR US-20070202725-A1 OR CN-101015096-A OR WO-2006013553-A3 OR EP-2095474-A2 OR US-7537471-B2 OR US-20080119076-A1 OR US-20050042930-A1 OR US-20080153352-A1).did.	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)	ADJ	ON	ON	2022/07/27 12:05 PM
L74	8610	reversible WITH (plug OR socket OR receptacle OR connector)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:07 PM
L76	25	socket SAME plug SAME tongue SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L77	55	socket SAME tongue SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L78	582	socket SAME tongue SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L79	12287	socket SAME tongue	(US-PGPUB; USPAT; EPO; JPO;	ADJ	ON	ON	2022/07/27 12:12 PM

			DERWENT)				
L80	2600	socket SAME tongue SAME connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L81	489	reversible WITH USB WITH connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L82	43	socket SAME plug SAME USB SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L83	416	socket SAME plug SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L84	8654	socket WITH tongue	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L85	450	218/140.ccls.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L86	6905	electrical WITH socket WITH structure	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:12 PM
L87	2522	socket SAME plug SAME tongue	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:13 PM
L88	683	(USB WITH connector) SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:13 PM
L89	4464	USB SAME plug SAME socket SAME connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:13 PM
L90	1089	reversible SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM
L91	127	reversible SAME connector SAME socket SAME plug	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM
L92	22	(USB plug) SAME (metal sleeve)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM
L93	92	(USB plug) SAME (metal WITH case)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM
L94	5099	((two OR multiple OR plural) plug$1) SAME (socket OR female OR receptacle)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM
L95	189	((two OR multiple OR plural) plug$1) SAME (socket OR female OR receptacle) SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM
L96	28	guide-in sheet	(US-PGPUB; USPAT;	ADJ	ON	ON	2022/07/27

			EPO; JPO; DERWENT)				12:14 PM
L97	154	guide-in SAME contact	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2022/07/27 12:14 PM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	262	218/140.ccls.	(US-PGPUB; USPAT)	ADJ	ON	ON	2022/08/10 12:48 PM
N2	451	218/118.ccls.	(US-PGPUB; USPAT)	ADJ	ON	ON	2022/08/10 12:48 PM
N3	2050	H01R27/00.cpc.	(US-PGPUB; USPAT)	ADJ	ON	ON	2022/08/10 12:58 PM
N4	3417	H01R24/60.cpc.	(US-PGPUB; USPAT)	ADJ	ON	ON	2022/08/10 12:59 PM

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
				Art Unit	3992
				Examiner Name	Christopher E. Lee
Sheet	1	of	1	Attorney Docket Number	10186PAT-1-REI

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-kind Code [2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee of Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	7628655	12-08-2009	Chen	
	2	7731535	06-08-2010	Wan et al.	
	3	2007/0173129	07-26-2007	Han	
	4	2009/0042421	02-12-2009	Zheng et al.	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]; Number[4]; Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
	5	TWM 253969 U	12-21-2004	INVENTEC MULTIMEDIA & TELECOM		(Includes a Machine Translation of the Description and Claims)

OTHER ART (Including Author, Title, Date, Pertinent Pages, etc.)		
Examiner Initials*	Cite No.[1]	

Examiner Signature		Date Considered	

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

Espacenet

TWM253969U Connector

Applicants: INVENTEC MULTIMEDIA & TELECOM [TW]

Inventors: LOO SHENG-CHANG [TW]

Classifications:
IPC ***H01R13/64;*** (IPC1-7): H01R13/64;

Priorities: TW92221049U 2003-11-28

Application: TW92221049U·2003-11-28

Publication: TWM253969U·2004-12-21

Published as: TWM253969U

Connector

Abstract

No abstract found. Please consult other publications of this patent family in "Available in", if displayed above.

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Patents TWM253969

Connector

TWM253969U
Taiwan

Download PDF Find Prior Art Similar

Other languages: English

Inventor: Sheng-Chang Lee

Worldwide applications

2003 TW

Application TW92221049U events

2003-11-28 Application filed by Inventec Multimedia & Telecom

2003-11-28 Priority to TW92221049U

2004-12-21 Publication of TWM253969U

Info: Cited by (9), Legal events, Similar documents, Priority and Related Applications

External links: Espacenet, Global Dossier, Discuss

Claims (1)

Hide Dependent

1. V. Scope of Application 1. A connector structure, which is applied to a data processing device for inserting a connecting port of an electronic device, and the connecting port has a plurality of signal transmission pins, and the connector includes: The hollow shell is provided with a joint plate, so that the space of the shell is divided into a first cavity and a second cavity in f ⟿ a number of transmission units, each of the The signal transmission unit has = i connection pin and a second electrical connection pin, which are attached to the top side and the bottom side of the joint board with corresponding seals, and the signal is electrically connected' so that the connection port pin, Or perform data processing on the first electrical connection pin material processing equipment of the ==10=contact=, make the electronic device and the data 2. Such as the first item of the scope of the application for the electrical connection pin, the first -φ; Sui Zhai structure, of which the first type. . The first electrical connection pin and the adapter are integrally formed into the adapter and the adapter 3. As described in item i of the scope of the patent application, the element is bent in a z-shape. 4. If the first part of the scope of the application is a wire. , The connector structure described in which the 5. as claimed in the first item of the scope of the patent, the electrical connection pins and the second described in the connector structure 6. as in the patented scope of the first, the pins are generally in the shape of a long strip. , The connecting structure described in Jin, wherein the joint M253969

   The end of the plate is generally tapered.

   For example, the first item in the scope of the patent application is the connector structure of the household/electrical connection pin and the second electrical connection, which starts from the first. One end of the electrical pin is bent and slightly convex, such as the belt, +, > & First, the printed circuit board has traces, and the clamp holes of the second electric connection pin and the second electric connection pin are inserted into the Y connection pin and the second electric connection pin. clamp hole

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Description

M253969 4. Description of creation (1) [Technical field to which the new type belongs] This creation relates to a connector structure, which is applied to data: especially a connector structure for bidirectional insertion of connecting ports of an electronic device [Prior Art] : And full', there are a variety of data processing equipment output, type computers, and portable notebook computers, personal; Ersheng; desktop (digital Digital Assist, PDA) or digital cameras and other handheld = Processing equipment' provides a mode that can be operated anytime and anywhere, and is also convenient to carry with you. There are many and each has its own unique advantages; materials = i; The equipment wants to interact with other peripheral equipment such as electronic devices _ ^ ^ "By connecting ports and corresponding connection sockets to be connected. For peripheral equipment such as t different electronic devices on the second

SeHal machine, management equipment and keyboard, printing performance can effectively coordinate electronic devices; the transmission interface of side equipment, ^ ^ ^ ^ settings/, the connection method of various peripheral equipment, has become the transmission wheel communication used in the industry. One of the standard interfaces. There are many related systems for the standard connector of the general serial cockroach. It has long been published and known to the public. For example, M253969 on page 5 of the Patent Publication of the Republic of China.) and Case No. 433607 (Jianfu 07) that disclosed related technologies. The 862 case provides a "USB connector" which is mainly composed of an insulating body, a black body and a hollow metal shell. direction and extend to the tube hole of the metal shell. (iv) Case

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D discloses the "improved structure of the USB connector", which is technically characterized in that the two corresponding wall surfaces of the main body are extended with a horizontal surface and a vertical surface corresponding to the other wall surface to form a latching portion in the L, so that the two corresponding other wall surfaces are extended. A wall surface is in contact with the t-shaped clipping part. T connects i = f and the published materials, it can be found that f-knowing technology proposes a variety of solutions for = construction research, ... ^ , ~, has the effect of. However, the use of general-purpose serial ports has its own advantages and disadvantages. If you do not leave *, when you insert the connector in reverse, you have not noticed it, but this is the solution that has been solved by the relevant manufacturers [new content]. should try to be excluded. With this in mind, this creation discloses a connector structure that solves the above problem: the bidirectional insertion and combination of ports can be effectively based on the connector structure of this creation. The housing of the scorpion and the second housing* 'wherein the housing accommodates a joint plate, and the transmission unit has a first cavity and a second cavity, and the signal transmission pin is connected to the first cavity. Two electrical connection pins to correspond to each other

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關係，分別裝 藉由轉接件而 此時，電子裝 裝置之連接埠 腳，或可選擇 轉針腳搭載於 設係電性相接 有別於習 創作所提供的 置結合，成功 連傳輸，且避 為讓本創 裝易懂，下文 詳細說明如下 【實施方式】 附於接合板件 使第一電接針 置的連接埠可 的訊號傳輸針 地反向插入第 第一電接針腳，以進行資料 知技術僅提供 連接器結構，容 造出更為便 免使用者施力 作之上述和其 特學數個較佳 之頂側與背側，訊號 腳與第二電接針腳彼 正向插入第一腔體，腳搭載於對應的第一 二腔體，而使連接埠，進而將電子裝置與 的互傳作業。 單一方向的接合插入 使用者可自由地正向 利的使用機制，並避 不禽造成連接器的結 他目的、特徵、和優 實施例，並配合所附 傳輸單元 此相連。而使電子 電接針 的訊號傳 資料處理 方式，本 或反向插 保資料正 傳輸優。 點能更明 圖式作 依據本創作所揭 型電5自、筆記型電腦 備，以供外部鍵盤、或電子裝置等產品用 首先請參考「第1圖」 主要係包含有殼體10 體10為具有容置空間 將容置空間分隔為第 之末端處呈錐狀。4之連接器結構，可應用於個人桌上 、個人數位助理等各種資料處理設 滑鼠、掃瞄機、數位相機等周邊設備 以進行資料互傳作業的連接埠插置。 本說明本創作之第一較佳實施例，、接合板件2 0與訊號傳輸單元3〇，殼的中空狀，並容設有接合板件2〇，而 一腔體11與第二腔體12，接合板件2〇

、創作說明（4）。接合板件20裝配有複數個訊號傳輸單元3〇，元3。具有第一電接針腳31與第二電接針腳32，電第二電接針腳"佳；針腳32為長條狀，且一端近處 第一電接 f .., g&,8, , , ^ ^二電接針腳32，以彼此對應的關係，分、+腳31 =20之頂側21與底側22 K更得 = 3,高底的第二電接針腳，彼此相互對】2 支0/說明裝配樣，第一電接針腳31的配置，為 it. 'Tt傳輸單元3i0的第-電接二^ 義為A 、D，第二電接針腳32定義為a，、B，、「、第0轉接件33的4接，致使第二電接針腳32之A，置第 二：接針腳31之"相對呼應而連接，同理，B接；對2 之：二接A對1「，接腳，對應 置恰巧5n早7配置於接合板件2"時，上下的接腳配 多種利：金質的所板件的彎折狀態"轉接件33亦有施例，利用導線TA」拉 得、為本創作之第二較佳實 21與底側22所配置的第同樣可使接合板件20頂側 此對應，具有相同的電接針腳31與第二電接針腳32彼 另外亦可使用印刷電路板作為連接之用，如「第3 、創作說明（5）圖」所示，本實施例是利用印刷電路板5〇 例中的轉接件33,其中接合板件2。之相對兩側如以 例，分別裝配第一電接針腳"與第二電接針腳 接於印刷電路板的之貫孔51。印刷電路板50 ^目 m線，而如前述實例，以彼此相互對應的關 係，，接於接合板2〇底側22的第二電接針腳。μ 請配合「第5圖」，電子裝置的連接 入^腔體η，致使連接件的訊號傳輸二^正向插一電接針腳31，而令電子梦w f _ + 止 _、11搭載於第 料處理設備（H中：未不）電性相接於資 fl4-:::針4;搭載於接合板件20底側21所：「^ ^ ^ ^ ^ 电子展置與資料處理設備進行資1、傳作業。另外，第一電接針腳31與第-電接8+ 3§^9 末端略微彎折凸起的設計，亦能 以=32 搭載，接埠40的訊號傳輸針腳41。 簡輸早心可有效 線覆上述，本創作所揭露之連處 正反雙向的插置方式，有別於習知連=接埠功能，而充分解決傳統產品因使用的早向插接 橋限制；再者，無論正向或反向插置 K造成的結 腳可正確接收資料，實乃第 有習應的電接針 依法提出申請。貝乃第&#與實用之優良設計，爰 以上所述者，僅為本創作其中的較佳實施例而已，並 M253969 四、創作說明（6）非用來限定本創作的實施範圍；即凡依本創作申請專利範 圍所作的均等變化與修飾，皆為本創作專利範圍所涵蓋。

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The figure is a schematic diagram of the first embodiment of the structure of the authoring connector. The figure is a schematic diagram of the second embodiment of the structure of the authoring connector. The figure is a schematic diagram of the third embodiment of the structure of the creative connector. ^The picture shows the front view of the structure of the creative connector. Figure 15 is a schematic diagram of the use of the structure of the creative connector. ... 10 Shell 11 First cavity 12 Second cavity 20 Joining plate 21 Top side 22 Bottom side 24 Groove 30 Signal transmission unit 31 First electrical connection pin 32 Brother-electrical connection pin 33 Adapter 40 Connection port 41 Signal transmission pin 50 Printed circuit board 51 Clamp hole

page 11

Cited By (9)

Publication number	priority date	Publication date	Assignee	Title
CN104425960A *	2013-09-06	2015-03-18	Foxconn (Kunshan) Computer Connector Co., Ltd.	electrical connector combination
CN105337105A *	2014-08-27	2016-02-17	Foxconn (Kunshan) Computer Connector Co., Ltd.	Electrical connector and method of making the same
US9287668B2	2012-10-18	2016-03-15	Hon Hai Precision Industry Co., Ltd.	I/O plug connector adapted for normal insertion and reverse insertion into I/O receptacle connector and connector assembly having the two
US9450355B2	2014-03-12	2016-09-20	Foxconn Interconnect Technology Limited	USB plug connector and method for manufacturing the same
CN106025637A *	2016-07-18	2016-10-12	Qingdao Hisense Mobile Communication Technology Co., Ltd.	Usb interface
TWI578633B *	2014-08-22	2017-04-11	Hongteng Precision Technology Co., Ltd.	電連接器及其製造方法
US9722383B2	2014-05-07	2017-08-01	Foxconn Interconnect Technology Limited	Electrical connector having insulative housing and method of making the same
US9847605B2	2014-05-07	2017-12-19	Foxconn Interconnect Technology Limited	Method of manufacturing an electrical connector having an insulative housing for two rows of terminals
US10559932B2	2010-07-19	2020-02-11	Chou Hsien Tsai	Bidirectional duplex electrical connector having circuit board
Family To Family Citations				

* Cited by examiner, † Cited by third party, ‡ Family to family citation

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Similar Documents

Publication	Publication Date	Title
TWM253969U	2004-12-21	Connector
TW389010B	2000-05-01	Electronic connector adapter with power input
US7322857B2	2008-01-29	Electric power connector adapting structure
TW200537748A	2005-11-16	Configuration changeable adapter
TW200539524A	2005-12-01	Foolproof jack
CN201639126U	2010-11-17	具有信号增益电路的扩充接口模块
TWM422178U	2012-02-01	Photoelectric signal converting module
TWI232609B	2005-05-01	Slim phone jack
CN2733636Y	2005-10-12	可双面插接的usb接头
TWM411679U	2011-09-11	Connector expansion module implemented through PCI-E bus
CN207038782U	2018-02-23	柔性电路板与连接器母座的连接结构
CN210985048U	2020-07-10	一种微型usb接口母座
CN211719831U	2020-10-20	方便插拔的usb连接器
TWI538327B	2016-06-11	充電轉接頭及電子裝置的充電方法
CN212011366U	2020-11-24	一种fpc连接器
CN209963328U	2020-01-17	一种usb母座连接器
TWM383224U	2010-06-21	Micro USB socket connector
TWM491270U	2014-12-01	端子模組
TW434949B	2001-05-16	Connection wire apparatus and equipment end connector for transmitting signal and power
TWM251317U	2004-11-21	Circuit board connector
TWM559522U	2018-05-01	適用於多種傳輸介面的連接器
TWM347016U	2008-12-11	Circuit board module with polygon-shaped circuit
TWM290324U	2006-05-01	USB connector module
TWM332277U	2008-05-11	Electrical connector
TWI375728B	2012-10-21	Electrical receptacle connector and assembly thereof

Priority And Related Applications

Priority Applications (1)

Application	Priority date	Filing date	Title
TW92221049U	2003-11-28	2003-11-28	Connector

Applications Claiming Priority (1)

Application	Filing date	Title
TW92221049U	2003-11-28	Connector

Legal Events

Date	Code	Title	Description
2009-10-01	MM4K	Annulment or lapse of a utility model due to non-payment of fees	

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Concepts

machine-extracted

Download Filter table

Name	Image	Sections	Count	Query match
biological transmission		claims,description	17	0.000
corresponding		claims,description	9	0.000
insertion		claims,description	7	0.000
material		claims,description	4	0.000
Jaw		claims	1	0.000
cakes		claims	1	0.000
fasting		claims	1	0.000
spinning		claims	1	0.000

Show all concepts from the description section

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公告本

申請日期： 92-11-28	IPC分類 H01R 13/64
申請案號： 92221049	

（以上各欄由本局填註）

新型專利說明書 M253969

一、新型名稱	中文	連接器結構
	英文	
二、創作人（共1人）	姓名（中文）	1. 羅盛章
	姓名（英文）	1. LOU, SHENG CHANG
	國籍（中英文）	1. 中華民國 TW
	住居所（中文）	1. 台北市內湖區內湖路一段396號5樓
	住居所（英文）	1.
三、申請人（共1人）	名稱或姓名（中文）	1. 英保達股份有限公司
	名稱或姓名（英文）	1. INVENTEC MULTIMEDIA & TELECOM
	國籍（中英文）	1. 中華民國 TW
	住居所（營業所）（中文）	1. 台北市內湖路一段396號5樓 （本地址與前向貴局申請者相同）
	住居所（營業所）（英文）	1.
	代表人（中文）	1. 葉國一
	代表人（英文）	1.

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一、本案已向

國家(地區)申請專利	申請日期	案號	主張專利法第一百零五條準用第二十四條第一項優先權

無

二、□主張專利法第一百零五條準用第二十五條之一第一項優先權:

申請案號:

無

日期:

三、主張本案係符合專利法第九十八條第一項□第一款但書或□第二款但書規定之期間

日期:

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四、創作說明（1）

【新型所屬之技術領域】

本創作係有關一種連接器結構，應用於資料處理設備，特別是可供電子裝置之連接埠雙向插置的連接器結構。

【先前技術】

電子產業的興盛，目前已有多種資料處理設備的產出而滿足不同的使用需求。如提供強大的資料處理性能的桌上型電腦，而方便攜帶的筆記型電腦、個人數位助理（Personal Digital Assist, PDA）或數位相機等手持式資料處理設備，則提供可隨時隨地操作模式亦便於隨身攜行。

上述各類資料處理設備的種類眾多而各具有獨到的優勢，然對於產品的擴充功能卻具有相同的解決方案。大體而言，各類資料處理設備欲與其他電子裝置等周邊設備互傳資料，必須藉由連接埠與對應的連接座加以相接。針對市面上多種不同的電子裝置等周邊設備，日前由各企業共同制訂出一種傳輸介面，通用序列埠（Universal Serial Bus）

通用序列埠是一種介於資料處理設備與鍵盤、印表機、掃描器、數位相機等各類周邊設備的傳輸介面，其出現有效統籌電子裝置與各類周邊設備的連接方式，目前已成為產業界常用的傳輸通訊標準介面之一。

其中符合通用序列埠之規範的連接器，有許多相關製作技術早已公開而為社會大眾所知悉，如中華民國專利公

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四、創作說明（2）

告第435862號（簡稱862案）與第433607案（簡稱607案）即揭露有相關的技術。862案提供一種「USB連接器」，主要係由絕緣主體、崙此與中空之金屬殼體所構成，其特徵在於金屬殼體具有裂縫，係自絕緣主體之插入端，順沿絕緣主體之插入方向而延伸至金屬殼體之卡孔。607案揭露「USB連接器改良構造」，其技術特徵在於主體兩相對應的壁面上延伸有對應另一壁面的水平面與垂直面，而形成L型的卡接部，而使兩對應的另一壁面與L型卡接部產生干涉。

綜觀上述與已公開的資料中可以發現，習知技術針對連接器的組配結構進行研究而提出多種解決方案，而可合理的實行並具有一定的效果。然通用序列埠的使用具有方向性，因此使用者若稍不留意，以反向插入連接器之時，將迫使連接器產生形變而造成連接器結構上的損傷，或因訊號不正確而無法正確傳遞資料。此乃至今相關生產業者並未留意而尚無對應解決的方案，應設法予以排除。

【新型內容】

有鑑於此，本創作揭露一種連接器結構，提供一種可讓電子裝置的連接埠雙向插置結合的連接器結構，可有效解決上述問題。

依據本創作之連接器結構，主要係由中空之殼體與複數個訊號傳輸單元所構成，其中殼體容設有接合板件，而將殼體內的容置空間分隔出第一腔體與第二腔體，訊號傳輸單元具有第一電接針腳與第二電接針腳，以彼此對應的

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四、創作說明（3）

關係，分別緊附於接合板件之頂側與背側，訊號傳輸單元藉由轉接件而使第一電接針腳與第二電接針腳彼此相連。此時，電子裝置的連接埠可正向插入第一腔體，而使電子裝置之連接埠的訊號傳輸針腳搭觸於對應的第一電接針腳，或可選擇地反向插入第二腔體，而使連接埠的訊號傳輸針腳搭觸於第二電接針腳，進而將電子裝置與資料處理設備電性相接，以進行資料的互傳作業。

有別於習知技術僅提供單一方向的接合插入方式，本創作所提供的連接器結構，使用者可自由地正向或反向插置結合，成功營造出更為便利的使用機制，並確保資料正確傳輸，且避免使用者施力不當造成連接器的結構損傷。

為讓本創作之上述和其他目的、特徵、和優點能更明顯易懂，下文特舉數個較佳實施例，並配合所附圖式，作詳細說明如下。

【實施方式】

依據本創作所揭露之連接器結構，可應用於個人桌上型電腦、筆記型電腦、個人數位助理等各種資料處理設備，以供外部鍵盤、滑鼠、掃瞄機、數位相機等周邊設備或電子裝置等產品用以進行資料互傳作業的連接埠插置。首先請參考「第1圖」來說明本創作之第一較佳實施例，主要係包含有殼體10、接合板件20與訊號傳輸單元30，殼體10為具有容置空間的中空狀，並容設有接合板件20，而將容置空間分隔為第一腔體11與第二腔體12，接合板件20之末端處呈錐狀。

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四、創作說明（4）

接合板件20裝配有複數個訊號傳輸單元30，訊號傳輸單元30具有第一電接針腳31與第二電接針腳32，藉由轉折件33而連接第一電接針腳31與第二電接針腳32。較佳者，第一電接針腳31、第二電接針腳32與轉折件33為金屬材質的板件彎折而成立體的U狀。第一電接針腳31與第二電接針腳32為長條狀，且一端近緣處具有彎折凸起，轉折件33彎折呈Z狀。組配時，訊號傳輸單元30之第一電接針腳31與第二電接針腳32，以彼此對應的關係，分別緊附於接合板件20之頂側21與底側22，而使得頂側21的第一電接針腳31與底側22的第二電接針腳，彼此相互對應。續請配合「第4圖」來說明裝配態樣，第一電接針腳31的配置，為求方便說明，將訊號傳輸單元30的第一電接針腳31依序定義為A、B、C、D，第二電接針腳32定義為A'、B'、C'、D'，經由轉接件33的連接，致使第二電接針腳32之A'與第一電接針腳31之A而相對呼應而連接，同理，B接腳對應於B'接腳，C接腳對應於C'接腳，D接腳對應於D'接腳。換言之，訊號傳輸單元30配置於接合板件20時，上下的接腳配置恰巧相反。

除了利用金屬材質的板件的彎折狀態，轉接件33亦有多種變化，如「第2圖」所示，係為本創作之第二較佳實施例，利用導線作為轉接件33，同樣可使接合板件20頂側21與底側22所配置的第一電接針腳31與第二電接針腳32彼此對應，具有相同的效果。

另外亦可使用印刷電路板作為連接之用，如「第3

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四、創作說明（5）

圖」所示，本實施例是利用印刷電路板50來取代前述實施例中的轉接件33，其中接合板件20之相對兩側如同前述實施例，分別裝配第一電接針腳31與第二電接針腳32，再相接於印刷電路板50之箝孔51。印刷電路板50配置有走線，以使接合板20頂側21所配置的第一電接針腳31，藉由印刷電路板50走線，而如同前述實施例，以彼此相互對應的關係，連接於接合板20底側22的第二電接針腳。

續請配合「第5圖」，電子裝置的連接埠40可正向插入第一腔體11，致使連接埠40的訊號傳輸針腳41搭觸於第一電接針腳31，而令電子裝置（圖中未示）電性相接於資料處理設備（圖中未示），進行資料的互傳作業。同理，亦可選擇地將連接埠40以反向插入第二腔體12，而使得連接埠40的訊號傳輸針腳41搭觸於接合板件20底側21所配置的第二電接針腳32，亦使電子裝置與資料處理設備進行資料的互傳作業。另外，第一電接針腳31與第二電接針腳32末端略微彎折凸起的設計，亦確保訊號傳輸單元30可有效搭觸連接埠40的訊號傳輸針腳41。

綜觀上述，本創作所揭露之連接器結構，提供連接埠正反雙向的插置方式，有別於習知連接器提供的單向插接功能，而充分解決傳統產品因使用者插置不當所造成的結構損壞；再者，無論正向或反向插置，皆有對應的電接針腳可正確接收資料，實乃兼顧創意與實用之優良設計，爰依法提出申請。

以上所述者，僅為本創作其中的較佳實施例而已，並

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四、創作說明（6）

非用來限定本創作的實施範圍；即凡依本創作申請專利範圍所作的均等變化與修飾，皆為本創作專利範圍所涵蓋。



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圖式簡單說明

第1圖為本創作連接器結構之第一實施例示意圖。

第2圖為本創作連接器結構之第二實施例示意圖。

第3圖為本創作連接器結構之第三實施例示意圖。

第4圖為本創作連接器結構之正視圖。

第5圖為本創作連接器結構之使用示意圖。

【圖示符號說明】

10	殼體
11	第一腔體
12	第二腔體
20	接合板件
21	頂側
22	底側
24	穿槽
30	訊號傳輸單元
31	第一電接針腳
32	第二電接針腳
33	轉接件
40	連接埠
41	訊號傳輸針腳
50	印刷電路板
51	箝孔

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四、中文創作摘要　（創作名稱：連接器結構）

一種連接器結構，應用於資料處理設備，主要係由中空的殼體與訊號傳輸單元所組成，殼體內裝配有接合板件而將殼體的容置空間分隔出第一腔體與第二腔體，訊號傳輸單元具有第一電接針腳與第二電接針腳，分別緊附於接合板件之頂側與底側，訊號傳輸單元包含有轉接件以使第一電接針腳相連於第二電接針腳，致使電子裝置的連接埠可選擇地正向插入第一腔體或反向插入第二腔體，而電性相接於資料處理設備，進行資料的互傳作業。

五、英文創作摘要　（創作名稱：）



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六、指定代表圖

（一）、本案代表圖為：第____5____圖

（二）、本案代表圖之元件代表符號簡單說明：

10	殼體
11	第一腔體
12	第二腔體
20	接合板件
21	頂側
31	第一電接針腳
40	連接埠
41	訊號傳輸針腳

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五、申請專利範圍

1. 一種連接器結構，應用於一資料處理設備，以供一電子裝置之連接埠插置，且該連接埠具有複數個訊號傳輸針腳，該連接器係包括有：

一中空之殼體，容設有一接合板件，以將該殼體內之容置空間分隔為一第一腔體與一第二腔體；及

複數個訊號傳輸單元，每一該訊號傳輸單元具有一第一電接針腳與一第二電接針腳，以彼此對應的關係分別緊附於該接合板件之頂側與底側，且該訊號傳輸單元係透過一轉接件而令該第一電接針腳與該第二電接針腳相連，致使該連接埠可選擇地插入該殼體之第一腔體，以令傳輸針腳搭觸對應之該第一電接針腳，或將該連接埠插入該第二腔體，以令該傳輸針腳搭觸對應之該第二電接針腳，而使該電子裝置與該資料處理設備進行資料的互傳作業。

2. 如申請專利範圍第1項所述之連接器結構，其中該第一電接針腳、該第二電接針腳係與該轉接件係為一體成型。

3. 如申請專利範圍第1項所述之連接器結構，其中該轉接件係彎折呈Z狀。

4. 如申請專利範圍第1項所述之連接器結構，其中該轉接件係為一導線。

5. 如申請專利範圍第1項所述之連接器結構，其中該第一電接針腳與該第二電接針腳係概呈長條狀。

6. 如申請專利範圍第1項所述之連接器結構，其中該接合

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五、申請專利範圍

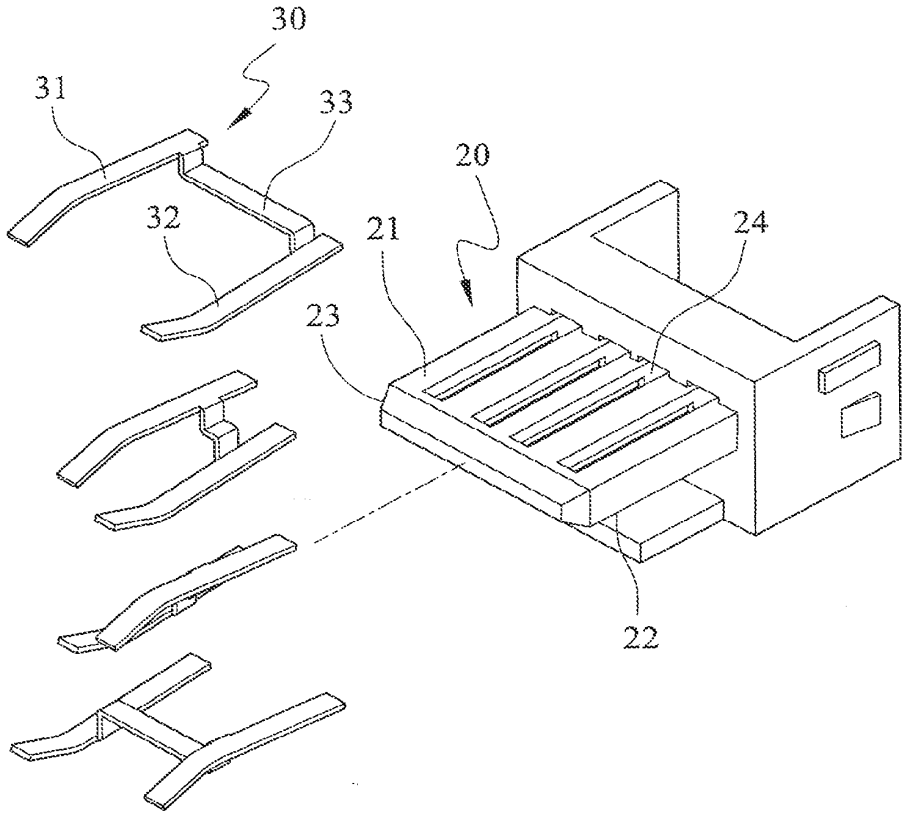
板件之末端係概呈錐狀。

7. 如申請專利範圍第1項所述之連接器結構，其中該第一電接針腳與該第二電接針腳之一端係彎折而略微凸起。

8. 如申請專利範圍第1項所述之連接器結構，其中該轉接件係為一印刷電路板，且該印刷電路板具有走線，與對應於該第一電接針腳與該第二電接針腳之箝孔，以使該第一電接針腳與該第二電接針腳插置入該箝孔而彼此相接。

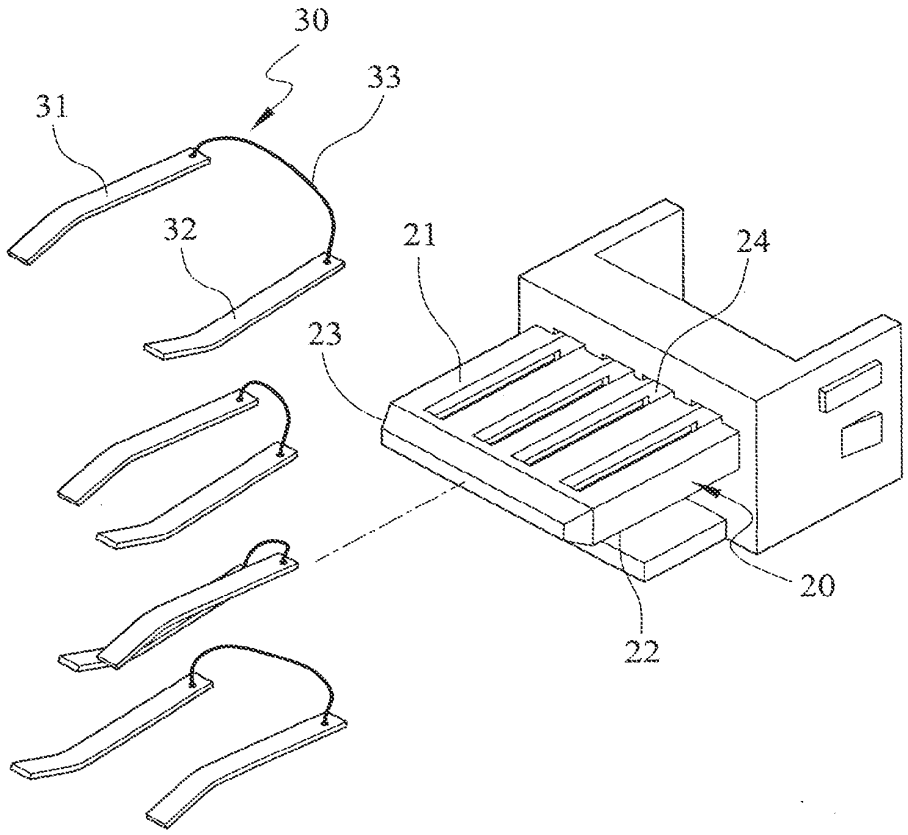
Samsung, EX1019, p. 56

圖式



第 1 圖

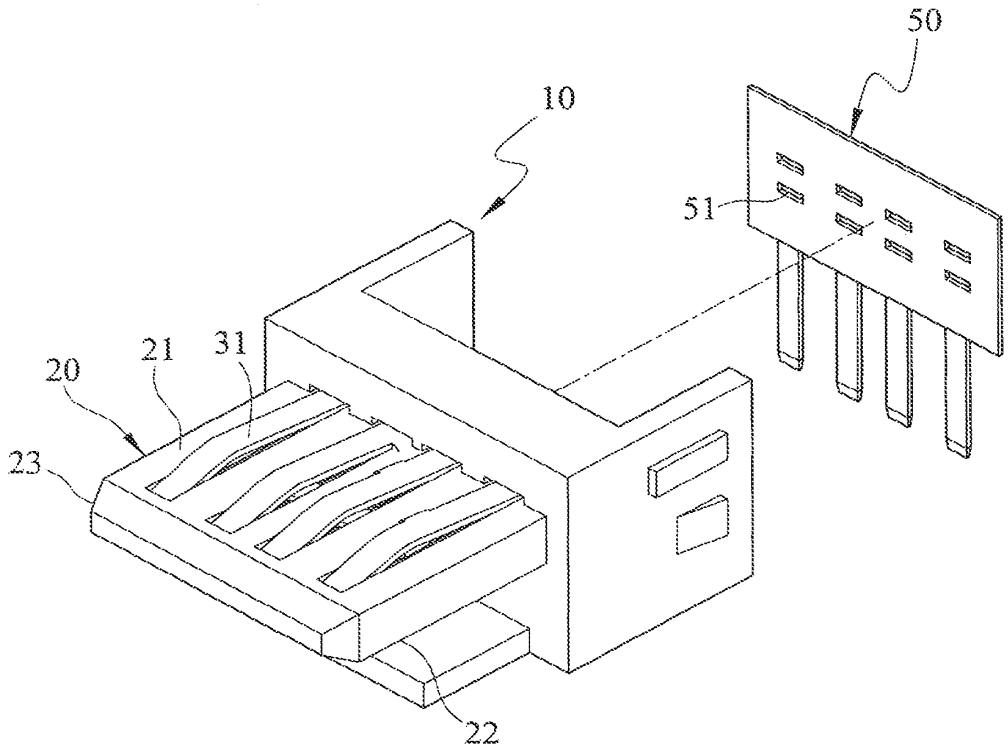
圖式



第 2 圖

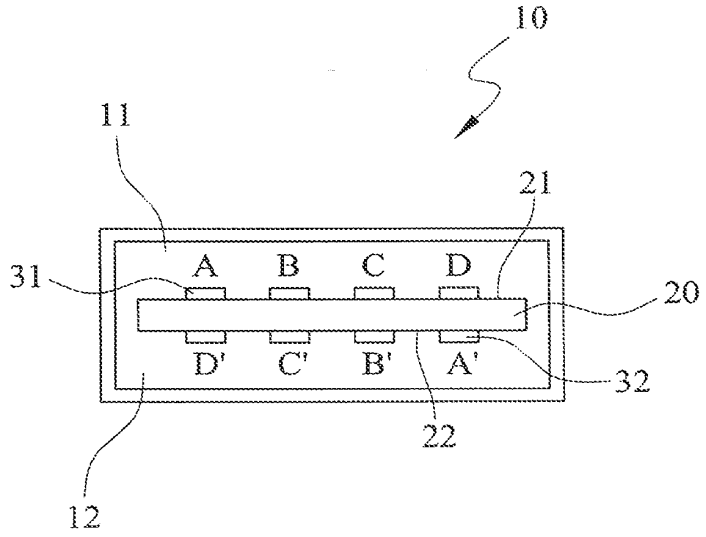
Samsung, EX1019, p. 58

圖式



第 3 圖

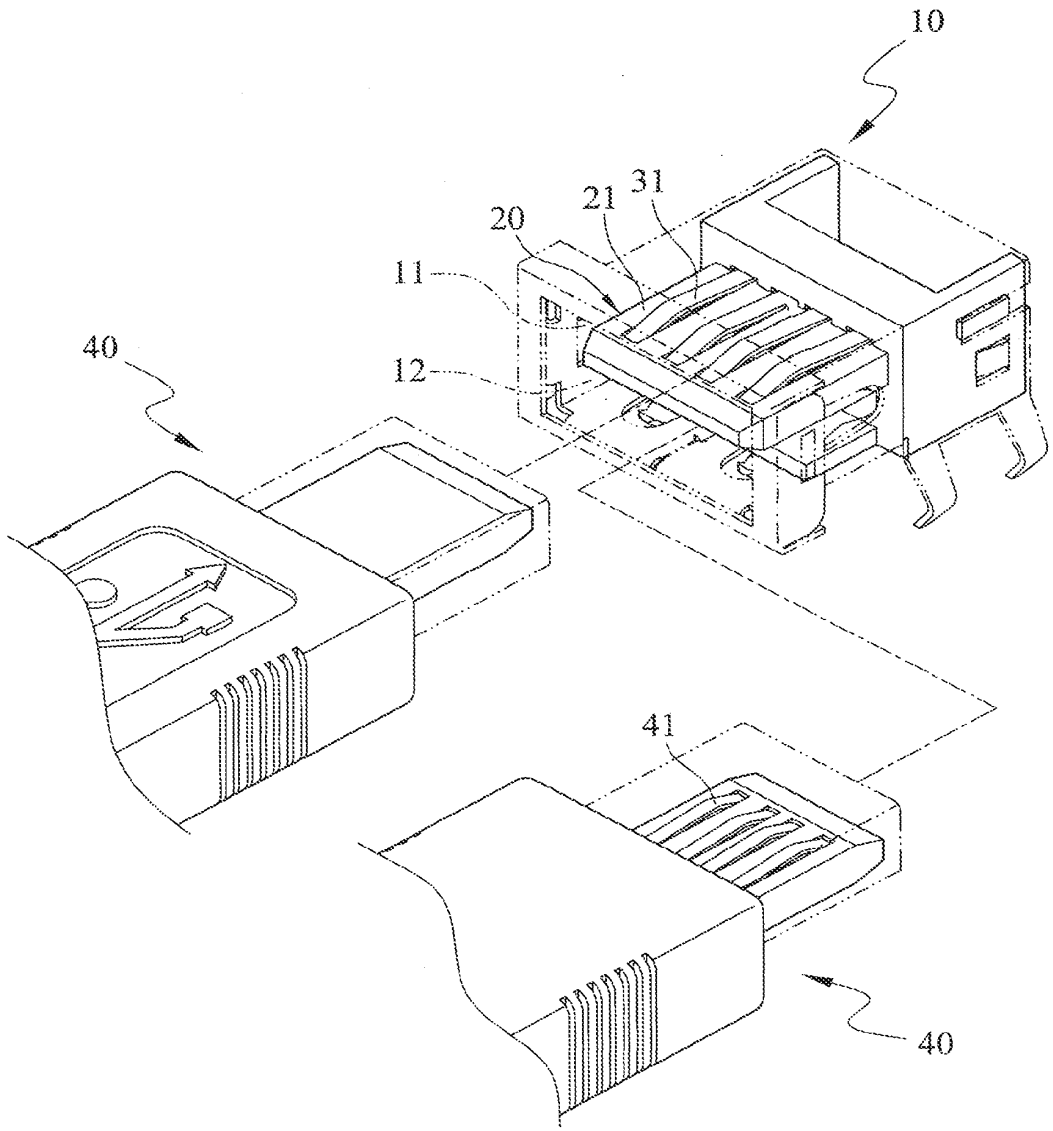
圖式



第 4 圖

Samsung, EX1019, p. 60

圖式



第 5 圖

Samsung, EX1019, p. 61

Electronic Patent Application Fee Transmittal

Application Number:	17020359
Filing Date:	14-Sep-2020
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Filer:	Jason Vick/Joanne Vos
Attorney Docket Number:	10186PAT-1-REI

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:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	130	130
		Total in USD ($)		**130**

Electronic Acknowledgement Receipt	
EFS ID:	46143457
Application Number:	17020359
International Application Number:	
Confirmation Number:	8163
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
Filer:	Jason Vick/Joanne Vos
Filer Authorized By:	Jason Vick
Attorney Docket Number:	10186PAT-1-REI
Receipt Date:	08-JUL-2022
Filing Date:	14-SEP-2020
Time Stamp:	11:29:21
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$130
RAM confirmation Number	E202278B29494474
Deposit Account	191970
Authorized User	Joanne Vos
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS_03.pdf	226288 eb04fafd3a69be75b106b70b1199e9a3c01bf2d7	yes	4
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Letter specifying the conditions for filing under 37 CFR 1.97		1	3	
	Information Disclosure Statement (IDS) Form (SB08)		4	4	
Warnings:					
Information:					
2	Foreign Reference	TWM253969U.pdf	3671282 a30afed4f476fa6e956279e2425ce12324a94433	no	23
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	38027 7bd92455ebfb7a9012d06474e03d0de07302e740	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3935597		

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 3992
Chou Hsien Tsai	)	Confirmation No.: 8163
Serial No.: 17/020,359	)	Examiner: Christopher E. Lee
Filed: September 14, 2020	)	
Atty File No.: 10186PAT-1-REI	)	SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
Entitled: "SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION"	)	Electronically Submitted

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The references cited on attached Form PTO-1449 are being called to the attention of the Examiner.

☒ Copies of the cited non-patent and/or foreign references are enclosed herewith.

☐ Copies of the cited U.S. patents and/or patent applications are enclosed herewith.

☒ Copies of the cited U.S. patents/unpublished patent applications/patent application publications are not enclosed in accordance with 37 C.F.R. § 1.98(a).

☐ Copies of the cited references are not enclosed, in accordance with 37 C.F.R. § 1.98(d), because the references were cited by or submitted to the U.S. Patent and Trademark Office in prior application Serial No. _____ filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120.

☒ To the best of applicants' belief, the pertinence of the foreign-language references are believed to be summarized in the attached English translation/abstracts and/or in the figures, although applicants do not necessarily vouch for the accuracy of the translation.

☐ Examiner's attention is drawn to the following related applications:

- Serial No. _____ filed _____ (Attorney Ref. No. _____)

☐ Other: _____

Submission of the above information is not intended as an admission that any item is citable under the statutes or rules to support a rejection, that any item disclosed represents

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analogous art, or that those skilled in the art would refer to or recognize the pertinence of any reference without the benefit of hindsight, nor should an inference be drawn as to the pertinence of the references based on the order in which they are presented. Submission of this statement should not be taken as an indication that a search has been conducted, or that no better art exists.

It is respectfully requested that the cited information be expressly considered during the prosecution of this application and the references made of record therein.

FEES

☐	**37 CFR 1.97(b):** No fee is believed due in connection with this submission, because the information disclosure statement submitted herewith is satisfied by one of the following conditions ("X" indicates satisfaction): ☐ Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or ☐ Within three months of the date of entry into the national stage of an international application as set forth in 37 CFR 1.491 or ☐ Before the mailing date of a first Office Action on the merits, or ☐ Before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970.
☒	**37 CFR 1.97(c):** The information disclosure statement transmitted herewith is being filed after all the above conditions (37 CFR 1.97(b)), but before the mailing date of one of the following conditions: (1) a final action under 37 C.F.R. 1.113 or (2) a notice of allowance under 37 C.F.R. 1.311, or (3) an action that otherwise closes prosecution in the application. This Information Disclosure Statement is accompanied by: ☐ A Certification (below) as specified by 37 C.F.R. 1.97(e). Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970. OR ☒ Please charge Deposit Account 19-1970 in the amount of $260.00 for the fee set forth in 37 C.F.R. 1.17(p) for submission of an information disclosure statement. Please credit any overpayment or charge any underpayment to Deposit Account 19-1970.
☐	**37 CFR 1.97(d):** This Information Disclosure Statement is being submitted after the period specified in 37 CFR 1.97(c). ☐ This information Disclosure Statement includes a Certification (below) as specified by 37 C.F.R. 1.97(e) AND ☐ Applicants hereby requests consideration of the reference(s) disclosed herein. Please charge Deposit Account 19-1970 in the amount of $260.00 under 37 C.F.R. 1.17(p). Please credit any overpayment or charge any underpayment to Deposit Account 19-1970. Election to pay the fee should not be taken as an indication that applicant(s) cannot execute a certification.

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Certification (37 C.F.R. 1.97(e))

(Applicable only if checked)

☐ The undersigned certifies that:

☐ Each item of information contained in this 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 this statement. 37 C.F.R. 1.97(e)(1).

☐ A copy of the communication from the foreign patent office is enclosed.

OR

☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in this Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(2).

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: July 8, 2022

By: /Jason H. Vick/

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Denver, Colorado 80202
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jvick@sheridanross.com

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: Chou Hsien Tsai	Group Art Unit: 3992
Application No.: 17/020,359	Examiner: LEE, CHRISTOPHER E
Filed: September 14, 2020	Confirmation No.: 8163
Atty. File No.: 10186PAT-1-REI	

For: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

AMENDMENT AND RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

Applicant submits this Amendment and Response to address the Office Action having a mailing date of January 11, 2022. Please credit any overpayment or charge any underpayment to Deposit Account No. 19-1970.

Please amend the above-identified patent application as follows:

Amendments to the Claims are shown in the listing of claims which begins on page **2** of this paper.

Remarks begin on page **11** of this paper.

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Cancel Claims 1 - 33.

34. (New) A socket structure configured for a duplex electrical connection, the socket structure comprising:

a plastic base;

a connection slot, which is disposed in front of the plastic base and configured to be connected to a plug having at least one row of connection terminals;

a tongue, which has a first surface and a second surface disposed opposite the first surface, and is disposed on one end of the plastic base and within the connection slot, such that chambers of the connection slot on two sides of the tongue allow the plug to be normally and oppositely inserted and positioned into the connection slot;

at least one row of first contacts separately arranged on the first surface of the tongue, wherein each of the first contacts is electrically connected to a respective first pin extending out of the plastic base; and

at least one row of second contacts separately arranged on the second surface of the tongue, wherein:

each of the second contacts is electrically connected to a respective second pin extending out of the plastic base;

when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and

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when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.

35. (New) The socket structure of claim 34, further comprising a metal housing at least partially covering the plastic base.

36. (New) The socket structure of claim 34, wherein the tongue and the plastic base are integrally formed.

37. (New) The socket structure of claim 34, further comprising a plurality of slots in the tongue for respective ones of the at least one row of first contacts.

38. (New) The socket structure of claim 34, further comprising a plurality of slots in the tongue for respective ones of the at least one row of second contacts.

39. (New) The socket structure of claim 34, further comprising a rear cover on the plastic base.

40. (New) The socket structure of claim 34, wherein each contact is a portion of a respective terminal.

41. (New) The socket structure of claim 34, wherein each of the first contacts is electrically connected to the respective first pin extending out of the plastic base through a rear cover.

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42. (New) The socket structure of claim 34, wherein each of the second contacts is electrically connected to the respective second pin extending out of the plastic base through a rear cover.

43. (New) The socket structure of claim 34, further comprising at least one row of first terminals separately arranged on the first surface of the tongue.

44. (New) The socket structure of claim 43, further comprising at least one row of second terminals separately arranged on the second surface of the tongue.

45. (New) The socket structure of claim 34, wherein at least two of the first contacts are not in electrical communication with one another.

46. (New) The socket structure of claim 34, wherein at least two of the second contacts are not in electrical communication with one another.

47. (New) The socket structure of claim 34, wherein the at least one row of first contacts and the respective first pins are formed on respective ones of a row of first terminals.

48. (New) The socket structure of claim 34, wherein a first contact and a second contact respectively project beyond one surface of the tongue.

49. (New) The socket structure of claim 34, wherein each of the first contacts and each of the second contacts are within the connection slot.

50. (New) A socket structure configured for a duplex electrical connection with a plug, the socket structure comprising:

a plastic base;

a connection slot, which is disposed in front of the plastic base and configured to be connected to the plug having at least one row of connection terminals;

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a tongue, comprising a first surface and a second surface disposed opposite the first surface, the tongue being disposed on one end of the plastic base and within the connection slot, such that chambers of the connection slot on two sides of the tongue allow the plug to be normally and oppositely inserted and positioned into the connection slot based on an operational state of when the socket structure is connected to the plug;

at least one row of first contacts separately arranged on the first surface of the tongue, wherein each of the first contacts is electrically connected to a respective at least first pin extending out of the plastic base; and

at least one row of second contacts separately arranged on the second surface of the tongue, wherein

each of the second contacts is electrically connected to a respective at least second pin extending out of the plastic base; and, the socket structure is configured for two separate operational states: a first operational state

when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and a second operational state

when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.

51. (New) The socket structure of claim 50, further comprising a metal housing at least partially covering the plastic base.

52. (New) The socket structure of claim 50, wherein the tongue and the plastic base are integrally formed.

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53. (New) The socket structure of claim 50, further comprising a plurality of slots in the tongue for respective ones of the at least one row of first contacts.

54. (New) The socket structure of claim 50, further comprising a plurality of slots in the tongue for respective ones of the at least one row of second contacts.

55. (New) The socket structure of claim 50, further comprising a rear cover on the plastic base.

56. (New) The socket structure of claim 50, wherein each contact is a portion of a respective terminal.

57. (New) The socket structure of claim 50, wherein each of the first contacts is electrically connected to the respective first pin extending out of the plastic base through a rear cover.

58. (New) The socket structure of claim 50, wherein each of the second contacts is electrically connected to the respective second pin extending out of the plastic base through a rear cover.

59. (New) The socket structure of claim 50, further comprising at least one row of first terminals separately arranged on the first surface of the tongue.

60. (New) The socket structure of claim 59, further comprising at least one row of second terminals separately arranged on the second surface of the tongue.

61. (New) The socket structure of claim 50, wherein at least two of the first contacts are not in electrical communication with one another.

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62. (New) The socket structure of claim 50, wherein at least two of the second contacts are not in electrical communication with one another.

63. (New) The socket structure of claim 34, wherein the symmetrical profiles in the up and down chambers are the same, and the symmetrical profiles in the left and right chambers are the same.

64. (New) The socket structure of claim 34, wherein the socket structure does not include the plug.

65. (New) The socket structure of claim 50, wherein the symmetrical profiles in the up and down chambers are the same, and the symmetrical profiles in the left and right chambers are the same.

66. (New) The socket structure of claim 50, wherein the socket structure does not include the plug.

67. (New) A socket structure configured for a duplex electrical connection with a plug, the socket structure comprising:

a plastic base;

a connection slot, which is disposed in front of the plastic base and configured to be connected to the plug having at least one row of connection terminals;

a tongue, comprising a first surface and a second surface disposed opposite the first surface, the tongue being disposed on one end of the plastic base and within the connection slot, such that chambers of the connection slot on two sides of the tongue allow the plug to be normally and oppositely inserted and positioned into the connection slot based on an operational state of when the socket structure is connected to the plug;

at least one row of first contacts separately arranged on the first surface of the tongue, wherein each of the first contacts is electrically connected to a respective at least first pin extending out of the plastic base;

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at least one row of second contacts separately arranged on the second surface of the tongue, wherein

each of the second contacts is electrically connected to a respective at least second pin extending out of the plastic base; and, the socket structure is configured for two separate operational states: a first operational state

when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of second contacts; and a second operational state

when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of first contacts; and

a metal housing covering the plastic base, wherein the tongue and the plastic base are integrally formed,

wherein:

at least one side of the metal housing projects inwardly to form at least one laterally elastically movable elastic sheet, and when the plug is inserted into the connection slot, the at least one elastic sheet may rest against the plug or the tongue to prevent the plug from turning when inserted,

the at least one elastic sheet comprises a first outer elastic sheet and a second outer elastic sheet which are disposed above and below of the tongue on one side of the connection slot, the plug has a plastic base and a metal housing covering the plastic base, a chamber is formed between the metal housing and the plastic base, and when the plug is inserted into the connection slot, the chamber is fitted with the tongue, the first outer elastic sheet on one side of the metal housing is pushed away by the plug, and the second outer elastic sheet rests against one of the surfaces of the plug, and

the at least one elastic sheet further comprises two inner elastic sheets disposed on inner sides of the two outer elastic sheets, and the two inner elastic sheets respectively rest against top and bottom surfaces on one side of the tongue.

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68. (New) A socket structure configured for a duplex electrical connection with a plug, the socket structure comprising:

a plastic base;

a connection slot, which is disposed in front of the plastic base and configured to be connected to the plug having at least one row of connection terminals;

a tongue, comprising a first surface and a second surface disposed opposite the first surface, the tongue being disposed on one end of the plastic base and within the connection slot, such that chambers of the connection slot on two sides of the tongue allow the plug to be normally and oppositely inserted and positioned into the connection slot based on an operational state of when the socket structure is connected to the plug;

at least one row of first contacts separately arranged on the first surface of the tongue, wherein each of the first contacts is electrically connected to a respective at least first pin extending out of the plastic base; and

at least one row of second contacts separately arranged on the second surface of the tongue, wherein

each of the second contacts is electrically connected to a respective at least second pin extending out of the plastic base; and, the socket structure is configured for two separate operational states: a first operational state

when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of second contacts; and a second operational state

when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of first contacts,

wherein:

the at least one row of first contacts and the first pins are formed on at least one row of first terminals.

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the first terminal is integrally formed with the first contact, a first extension, a first fixing portion and the first pin,

the at least one row of second contacts and the second pins are formed on at least one row of second terminals, and the second terminal is integrally formed with the second contact, a second extension, a second fixing portion and the second pin,

the first contacts of the row of first terminals and the second contacts of the row of second terminals respectively project beyond one of the surfaces of the tongue, and

a front end of the first contact has a first guide-in sheet, a front end of the second contact has a second guide-in sheet, the first contact and the second contact are vertically aligned with each other, and the first guide-in sheet and second guide-in sheet are staggered in a left to right direction.

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REMARKS

Applicant respectfully requests reconsideration of this application, as amended.

Applicant thanks Ex. Lee for the indication that claims 22 and 26 contain allowable subject matter. By this amendment, claims 22 and 26 have been drafted in independent form as new claims 67 and 68, respectively.

Submitted herewith is a replacement Reissue Declaration by the Assignee. Withdrawal of the rejection to the Declaration is respectfully requested.

Claims 37, 38, 53 and 54 have been amended in accordance with the Examiner's understanding. Withdrawal of the objection is respectfully requested.

Regarding the 35 U.S.C. §112 rejection, Applicant respectfully submits the claims are definite and traverses the rejection.

As recognized by the Examiner in the "First Plausible Interpretation" the claims are directed toward a socket structure. The plug is only inferentially claimed, see for example claim 34 which states "configured to be connected to a plug," and claim 50 which states "a connection slot, which is disposed in front of the plastic base and configured to be connected to the plug having at least one row of connection terminals." Thus, and as recognized by the Examiner, a person of ordinary skill in the art would interpret the claims as limited to the socket structure alone and not to a socket and plug structure. This is reinforced with new claims 64 and 66 that recite the socket structure does not include the plug.

Withdrawal of the rejection is respectfully requested.

Claims 1-6, 12, 14, 15, 18, 19, 21, 24 and 34-62 are rejected as anticipated by Teicher. This rejection is respectfully traversed.

Claims 1-33 have been cancelled without prejudice or disclaimer rendering a portion of the rejection moot.

Claim 34 recites:

... when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection

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slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and

when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.

Claim 50 recites:

... the socket structure is configured for two separate operational states: a first operational state

when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and a second operational state

when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.

Support for amended claims 34 and 50 can at least be found in patented claim 18. Support for new clams 63-66 can at least be found in patented claim 18, Figs. 52-53, and the corresponding description thereof, and the other overlapping portions of the specification.

Teicher at least does not disclose the above recited combination of features. Specifically, Teicher is directed to a reversable universal serial bus device and connector. As can be seen in Figs. 5d and 5e thereof, Teicher has a tongue arrangement 150 in the receptacle 146 that interacts with block 174 and contacts 176 of plug 168.

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Fig. 5d

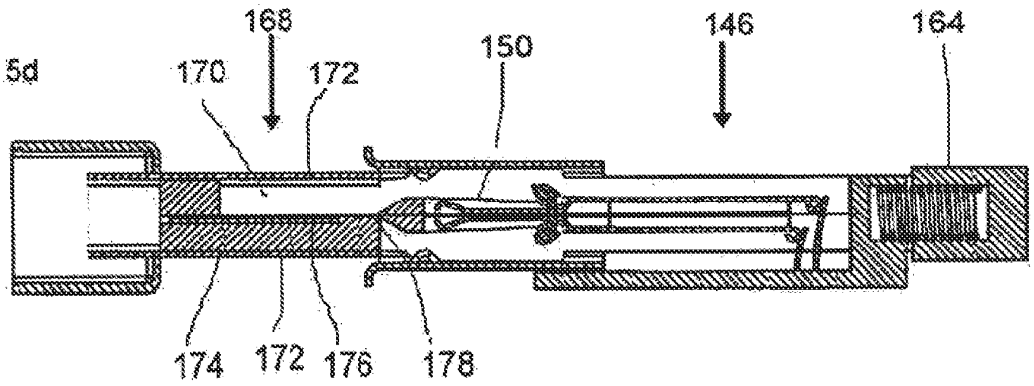
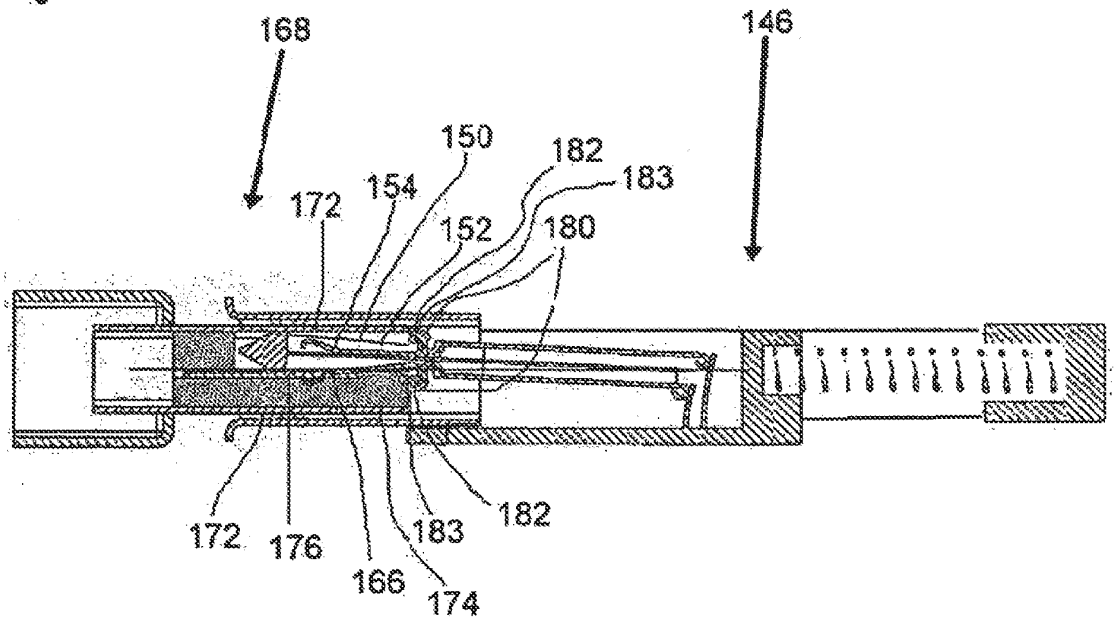


Fig. 5e



When the plug 168 of Teicher is inserted into the reversable receptacle 146, the tongue arrangement 150 deflects within the receptacle 146 as shown in Fig. 5e and rides on top of block 174. When this deflection occurs, the tongue arrangement 150 moves to an upper portion of the receptacle 146. This deflection of the tongue arrangement 150 is required for the operation of Teicher.

Teicher at least fails to teach and is incapable of operating in the claimed manner where:

when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of

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connection terminals of the plug are electrically connected to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue, (See Claim 34) or

the socket structure is configured for two separate operational states: a first operational state when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and a second operational state when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are configured to electrically connect to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue. (See Claim 50)

Claims 34 and 50 are therefore not anticipated by Teicher.

The dependent claims are further distinguishable at least based on the above and the additional feature(s) recited therein.

Withdrawal of the rejection is respectfully requested.

As Ni at least fails to address these shortcomings, all claims are distinguishable from the references.

With all objections and rejections having been overcome, Applicant respectfully submits the application is in condition for allowance.

A Notice of Allowance is respectfully solicited.

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Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is encouraged to contact Applicants undersigned representative at the telephone number listed below.

The Commissioner is hereby authorized to charge to deposit account number 19-1970 any fees under 37 CFR § 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby Petitioned.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: July 8, 2022

By: /Jason H. Vick/

Jason H. Vick
Reg. No. 45,285
1560 Broadway, Suite 1200
Denver, Colorado 80202
Telephone: 303-863-9700
jvick@sheridanross.com

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PTO/AIA/22 (10-20)
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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 10186PAT-1-REI

Application Number: 17/020,359

Filed: September 14, 2020

For: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Art Unit: 3992

Examiner: Christopher E. Lee

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

	Fee	Small Entity Fee	Micro Entity Fee	
☐ One month (37 CFR 1.17(a)(1))	$220	$110	$55	$
☐ Two months (37 CFR 1.17(a)(2))	$640	$320	$160	$
☑ Three months (37 CFR 1.17(a)(3))	$1,480	$740	$370	$ 740.00
☐ Four months (37 CFR 1.17(a)(4))	$2,320	$1,160	$580	$
☐ Five months (37 CFR 1.17(a)(5))	$3,160	$1,580	$790	$

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☑ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 19-1970.

☐ Payment made via EFS-Web.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 45,285.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Jason H. Vick/ — Signature

July 8, 2022 — Date

Jason H. Vick — Typed or printed name

303-863-9700 — Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ * Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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: Mail Stop PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Doc Code: REIS.DECL
Document Description: Reissue Oath or Declaration

PTO/AIA/06 (09-20)
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REISSUE APPLICATION DECLARATION BY THE ASSIGNEE	Docket Number (optional) 10186PAT-1-REI

I hereby declare that:

The residence and mailing address of the inventor or joint inventors are stated below.

Name of the Assignee:

KIWI CONNECTION, LLC

I am authorized to act on behalf of the assignee (if the assignee is a juristic entity).

The entire title to the patent identified below is vested in said assignee, or if there are multiple assignees/owners, all assignees/owners have executed a Reissue Application Declaration to account for the entire title of the patent identified below.

Inventor Chou Hsien Tsai

Residence: City	State	Country
NEW TAIPEI CITY		TW

Mailing Address

8F.-2, NO. 1, WUQUAN 1ST RD., XINZHUANG DIST.

City	State	Zip	Country
NEW TAIPEI CITY		242	TW

☐ Additional Inventors are named on separately numbered sheets attached hereto.

Patent Number 8,198,563	Patent Issue Date June 12, 2012

I believe said inventor(s) to be the original inventor or original joint inventors of the subject matter which is described and claimed in said patent, for which a reissue patent is sought on the invention titled:

SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

the specification of which

☐ is attached hereto.

☑ was filed on September 14, 2020 as reissue application number 17/020,359.

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

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.

I believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below.
(Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☑ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☐ by reason of other errors.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0031. Public burden for this form is estimated to average 1.2 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. 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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REISSUE APPLICATION DECLARATION BY THE ASSIGNEE	Docket Number (Optional) 10186PAT-1-REI

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, a claim that the application seeks to broaden must be identified and the box below must be checked:

See additional sheet.

[Attach additional sheets, if needed.]

☐ **The application for the original patent was filed under 37 CFR 1.46 by the assignee of the entire interest.**

I hereby appoint:

☑ Practitioners associated with Customer Number: 22442

OR

☐ Practitioner(s) named below:

Name	Registration Number

as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

Correspondence Address: Direct all communications about the application to:

☑ The address associated with Customer Number: 22442

OR

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

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.

Signature	William Tsai	Date (Optional)	2022.7.8
Legal name of person signing	William Tsai, Manager, Kiwi Connection LLC		
Address of Assignee	7215 Bosque Blvd., Suite a-#102, Waco, TX 76710		

REISSUE APPLICATION DECLARATION BY THE ASSIGNEE	Additional Sheet – PTO/AIA/06 (06-12) Docket Number – 10186PAT-1-REI

At least one error upon which reissue is based is described below. If the reissue is a broadening reissue, a claim that the application seeks to broaden must be identified and the box below must be checked:

At least one error upon which the subject reissue is based is that the patentee claimed more or less than they had the right to claim in the patent, and have therefore included the narrowing feature in claim 34 of when the plug is normally inserted into the connection slot with the at least one row of connection terminals of the plug facing the second surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts, and the tongue is disposed at a middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue; and when the plug is oppositely inserted into the connection slot with the at least one row of connection terminals of the plug facing the first surface of the tongue, the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts, and the tongue is disposed at the middle within the connection slot so that the connection slot is formed with symmetric profiles in up, down, left and right chambers around the tongue.

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.

Electronic Patent Application Fee Transmittal

Application Number:	17020359
Filing Date:	14-Sep-2020
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Filer:	Jason Vick/Joanne Vos
Attorney Docket Number:	10186PAT-1-REI

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:				
INDEPENDENT CLAIMS IN EXCESS OF 3	2201	1	240	240
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	740	740
Miscellaneous:				
		Total in USD ($)		**980**

Electronic Acknowledgement Receipt	
EFS ID:	46143360
Application Number:	17020359
International Application Number:	
Confirmation Number:	8163
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
Filer:	Jason Vick/Joanne Vos
Filer Authorized By:	Jason Vick
Attorney Docket Number:	10186PAT-1-REI
Receipt Date:	08-JUL-2022
Filing Date:	14-SEP-2020
Time Stamp:	11:21:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$980
RAM confirmation Number	E202278B21584342
Deposit Account	191970
Authorized User	Joanne Vos
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		AMEND_01v2_FINAL.pdf	383619 14ebefeeee7b2181df3d80998af9f345e315de41	yes	16

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment/Request for Reconsideration-After Non-Final Rejection	1	1
Claims	2	10
Applicant Arguments/Remarks Made in an Amendment	11	15
Extension of Time	16	16

Warnings:

Information:

2	Reissue Oath or Declaration	AMEND_01_Executed_Dec_by_Assignee.pdf	4201762 1b0b15052b9787b943600391b979c0862233264f	no	4

Warnings:

Information:

3	Fee Worksheet (SB06)	fee-info.pdf	40712 36848ae52b825f65381a8a793d86a020987953bc	no	2

Warnings:

Information:

Total Files Size (in bytes):	4626093

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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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 17/020,359	Filing Date 09/14/2020	☐ 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 $230 =	
☐ 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	07/08/2022	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 35	Minus	** 45	= 0		x $50 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 3	= 1		x $240 =	240
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	240

		(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.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/TYWANA P LOVELACE/
*** 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.	

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UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
17/020,359	09/14/2020	Chou Hsien Tsai	10186PAT-1-REI	8163

22442 7590 01/11/2022

Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

EXAMINER
LEE, CHRISTOPHER E

ART UNIT	PAPER NUMBER
3992	

NOTIFICATION DATE	DELIVERY MODE
01/11/2022	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):

e-docket@sheridanross.com

Office Action Summary	Application No. 17/020,359	Applicant(s) Tsai, Chou Hsien	
	Examiner Christopher E Lee	Art Unit 3992	AIA (FITF) Status No

-- 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 14 September 2020.

☐ 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) 1-6,12-15,18-19,21-22,24,26 and 34-62 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) 1-6,12-15,18-19,21-22,24,26 and 34-62 is/are rejected.

8) ☐ Claim(s) _____ 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 _____ 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. 12/759,408.

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 9/15/2020, 9/18/2020.

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

4) ☐ Other: _____.

DETAILED ACTION

Examination of Reissue Application

1. For reissue applications filed before September 16, 2012, all references to 35 U.S.C. § 251 and 37 CFR §§ 1.172, 1.175, and 3.73 are to the law and rules in effect on September 15, 2012. Where specifically designated, these are "pre-AIA" provisions.

For reissue applications filed on or after September 16, 2012, all references to 35 U.S.C. § 251 and 37 CFR §§ 1.172, 1.175, and 3.73 are to the current provisions.

2. The present application, filed on September 14, 2020, is for a reissue examination for United States Patent Number US 8,198,563 B2, which was issued to Tsai (hereinafter "the '563 Patent").

The application 12/759,408 (hereinafter "the '408 Application") for the '563 Patent was filed on April 13, 2010, which is entitled to the benefit of the filing dates of the prior applications TW 098112573 filed on 4/15/2009, TW 098117405 filed on 5/26/2009, TW 098210021 filed on 6/5/2009, and TW 099100847 filed on 1/13/2010 in the foreign country Taiwan under 35 U.S.C. § 119 (a)-(d); thus, the instant reissue application is **not** being examined under the first inventor to file provisions of the AIA.

Reissue Examination Procedures

3. Reissue applicant is reminded of the continuing obligation under 37 CFR § 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which the '563 Patent is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Reissue applicant is further reminded of the continuing obligation under 37 CFR § 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

Reissue applicant is notified that any subsequent amendment to the specification and/or claims must comply with 37 CFR § 1.173(b). In addition, for reissue applications filed before September 16, 2012, when any substantive amendment is filed in the reissue application, which amendment otherwise places the reissue application in condition for allowance, a supplemental oath/declaration will be required. See MPEP § 1414.01.

Receipt Acknowledgement

4. The reissue applicant filed a preliminary amendment with the instant reissue application on September 14, 2020. In the preliminary amendment, the original claims 1-6, 12-15, 18, 19, 22, 24, and 26 are not amended, but the original claim 21 is amended and the original claims 7-11, 16, 17, 20, 23, 25, 27-33 are canceled, and new claims 34-62 are added.

Currently, the claims 1-6, 12-15, 18, 19, 21, 22, 24, 26 and 34-62 are subject to the examination of this reissue application.

Assignment

5. The '563 Patent sought to be reissued has been assigned to: KIWI CONNECTION, LLC of WACO, TEXAS. The Assignee submitted the form PTO/AIA/53 "Reissue Application: Consent of Assignee" with the form PTO/AIA/96 "Statement under 37 CFR § 3.73(c)" specifying in the record of the reissue application where such evidence is recorded in the Office (i.e., Reel and Frame number 053711 / 0762). Therefore, the Examiner notices that the Assignee in the reissue is the reissue applicant pursuant to 37 CFR § 1.172(a).

Oath/Declaration

6. The reissue oath/declaration filed with this application is defective because the error which is relied upon to support the reissue application is not an error upon which a reissue can be based. See 37 CFR § 1.175 and MPEP § 1414.

The reissue applicant filed two reissue declarations, i.e., reissue application declaration by the assignee and reissue application declaration by the inventor, accompanied by the instant reissue application. In the declarations, the respective declarant alleges that there exists at least one error upon which the subject reissue is based is the inclusion of claims 7-11, 16, 17, 20, 23, 25, and 27-33 in the '563 Patent because an apparent administrative error by the Office by including the non-elected claims 7-11, 16, 17, 20, 23, 25, and 27-33 in the '563 Patent.

The instant reissue application is filed to correct the administrative error in the '563 Patent, wherein the correction to the '563 Patent is an editorial or clerical error which does not cause the '563 Patent to be deemed wholly or partly inoperative or invalid for the reasons specified in 35 U.S.C. § 251.

Furthermore, as mentioned in the above, the reissue applicant submitted two reissue declarations, i.e., reissue application declaration by the assignee and reissue application declaration by the inventor. Reissue application declaration by the inventor (form PTO/AIA/05) or reissue application declaration by the assignee (form PTO/AIA/06) may be used to prepare a

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declaration in a reissue application depending on the circumstances; however, filing both reissue application declaration by the assignee and reissue application declaration by the inventor at the same time is not acceptable. See MPEP § 1414.01.

Therefore, the declared error and its correction to the '563 Patent do not provide a basis for reissue although this correction may also be included in a reissue application, where a 35 U.S.C. § 251 error is already present. See MPEP § 1402.

Claim Objections

7. Claims 12, 21, 37, 38, 53, and 54 are objected to because of the following informalities:

The claim 1 and its dependent claims 12 and 21 respectively recite a phrase "a plastic base" in line 3 of the claim 1, in line 1 of the claim 12, and in line 4 of the claim 21 . Therefore, the respective phrases "the plastic base" recited in the claims 12 and 21 are not definitely clarified upon which one of the phrases "a plastic base" recited in the respective claims 1, 12, and 21 should be antecedently based.

The claims 37 and 53 respectively recite the term "the first row of contacts" in line 2. However, it has not been specifically clarified in the claims 37, 53 and their correspondingly intervening claims. Therefore, the Examiner presumes that the term "the first row of contacts" could be considered as --the row of first contacts-- in light of the specification since it is not defined in the claims.

The claims 38 and 54 respectively recite the term "the second row of contacts" in line 2. However, it has not been specifically clarified in the claims 38, 54 and their correspondingly intervening claims. Therefore, the Examiner presumes that the term "the second row of contacts" could be considered as --the row of second contacts-- in light of the specification since it is not defined in the claims.

Appropriate corrections are required.

Claim Rejections - 35 USC § 251

8. Claims 1-6, 12-15, 18, 19, 21, 22, 24, 26, and 34-62 are rejected as being based upon defective reissue declarations under 35 U.S.C. § 251 as set forth above. See 37 CFR § 1.175.

The nature of the defect(s) in the reissue declarations is set forth in the discussion above in this Office action.

Claim Rejections - 35 USC § 112

9. The following is a quotation of 35 U.S.C. § 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly

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claiming the subject matter which the applicant regards as his invention.

10. Claim 1-6, 12-15, 18, 19, 21, 22, 24, 26, and 34-62 are rejected under 35 U.S.C. § 112 (pre-AIA), second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor regards as the invention.

Claims 1, 34, and 50 are indefinite because the claimed structure (and thus claim scope) cannot be reasonably determined. In particular, it is unclear to a person of ordinary skill in the art if the reissue applicant intends the scope of respective claims 1, 34, and 50 to be drawn to the structure of the subcombination (i.e. "socket structure") alone, or alternatively, if the reissue applicant intends the scope of respective claims 1, 34, and 50 to be drawn to the structure of the "socket structure" *in combination with* the "plug". To support this conclusion, the Examiner notes the following:

(i) First Plausible Interpretation: the scope of respective claims 1, 34, and 50 is limited to the claimed invention "socket structure" alone.

A first, plausible interpretation is that respective claims 1, 34, and 50 is drawn to the claimed "socket structure" alone as stated in the preamble of respective claims 1, 34, and 50. For example, the respective claims 1, 34, and 50 begins: "A socket structure with duplex electrical connection ..., the socket structure comprising: ...". This is a strong evidence that the respective claims 1, 34, and 50 is limited to a "socket structure".

Claims dependent upon the respective claims 1, 34, and 50 also limit the scope of respective claims 1, 34, and 50 to the claimed "socket structure" since claims 2-5, 12-15, 18, 19, 21, 22, 24, 26, 35-49, and 51-62 begin with "[t]he socket structure of claim 1, 34, 50, or its prior claims ....". Thus, the preamble in claims dependent upon respective claims 1, 34, and 50 also support a conclusion that the respective claims 1, 34, and 50 (and their corresponding dependents claims) are limited to a "socket structure". This is additional evidence that the respective claims 1, 34, and 50 is limited to a "socket structure".

Although the respective claims 1, 34, and 50 also limits the scope to the subject matter "plug" since the respective claims 1, 34, and 50 recites "... may be connected to a plug," the limitation does not patentable weight because the subject matter "plug" is not a part of the claimed invention "socket structure".

From this evidence, a person of ordinary skill in the art could reasonably interpret the scope of respective claims 1, 34, and 50 as limited to the "socket structure" alone.

(ii) Second Plausible Interpretation: the scope of claim 1 is to the claimed invention "socket structure" *in combination with* a "plug".

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First, the respective claims 1, 34, and 50 recites the passage "a connection slot, which is disposed in front of the plastic base and may be connected to a plug having at least one row of connection terminals". From this claim language, the Examiner finds that the "socket structure" and a "plug" must be separate claim elements that do not overlap in scope since the "socket structure" must have a configuration that allows it to "be connected to a plug". This is a strong evidence that the respective claims 1, 34, and 50 discusses at least two separate elements, a "socket structure" and a "plug," respectively.

Second, the Examiner finds that the preamble of the respective claims 1, 34, and 50 ends by "the socket structure comprising ...," then goes on to recite various claim elements that, to one of ordinary skill in the art, must be within the "socket structure" because that is what the preamble requires. Those elements that must be within the "socket structure" are, among other things, the "plug".

Thus, this is strong evidence that the respective claims 1, 34, and 50 positively recites at least two separate elements, the "socket structure" and either the "plug".

Therefore, from the evidence noted above in this section, a person of ordinary skill in the art could alternatively (yet reasonably) interpret the respective claims 1, 34, and 50 as being drawn to a "socket structure" (as suggested by the preambles) *in combination with* a "plug" as suggested by the body of claim respective claims 1, 34, and 50.

(iii) Third Indeterminate Structure and Scope: structure and scope of respective claims 1, 34, and 50 cannot be reasonably determined.

The Examiner finds that the evidence noted above indicates that the two plausible claim interpretations have different claim structure and thus contradict each other since the first plausible interpretation *does not include* the "plug" and the second plausible interpretation *includes* the "plug". Thus, the two plausible claim interpretations have differing claim elements needed for direct infringement.

Because a potential infringer of respective claims 1, 34, and 50 would not know if direct infringement required creation or importation (i.e., possession) of the subcombination alone (i.e. the "socket structure" from the preamble of respective claims 1, 34, and 50), or if direct infringement required possession of the combination of "socket structure" **and** the "plug" as suggested by the body of respective claims 1, 34, and 50, the respective claims 1, 34, and 50 is indefinite under 35 U.S.C. § 112 (pre-AIA), second paragraph.

Reissue applicant is reminded that "if a claim is amenable to two or more plausible claim constructions, the USPTO is justified in requiring the applicant to more precisely define the metes and bounds of the claimed invention by holding the claim unpatentable under 35 U.S.C. §

112 (pre-AIA), second paragraph, as indefinite." *Ex parte Miyazaki*, 89 USPQ2d 1207, 1211 (BPAI 2008)(precedential).

To overcome this particular 35 U.S.C. § 112 (pre-AIA), second paragraph, rejection and assuming reissue applicant's original specification supports such an amendment under 35 U.S.C. § 112 (pre-AIA), first paragraph, the Examiner recommends (by way of example only) that if it is reissue applicant's desire to claim only the subcombination "socket structure," the body of the respective claims 1, 34, and 50 must be amended to exclude (or not positively recite) the "plug".

Alternatively, if it is reissue applicant's desire to claim a "socket structure" **in combination** with the "plug," the preamble of respective claims 1, 34, and 50 must be amended to reflect reissue applicant's intent.

The claims 2-6, 12-15, 18, 19, 21, 22, 24, and 26 are dependent claims of the claim 1.

The claims 35-49 are dependent claims of the claim 34.

The claims 51-62 are dependent claims of the claim 50.

Claim Rejections - 35 USC § 102

11. In the event the determination of the status of the application 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.

12. The following is a quotation of the appropriate paragraphs of pre-AIA 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-6, 12, 14, 15, 18, 19, 21, 24, and 34-62 are rejected under pre-AIA 35 U.S.C. § 102(b) as being anticipated by Teicher [US 2006/0024997 A1].

Referring to claim 1, Teicher discloses a socket structure with duplex electrical connection (i.e., reversible universal serial bus (USB) receptacle (socket) in Figs. 5a-8g; See Abstract and ¶ [0008]), the socket structure (i.e., said reversible USB receptacle) comprising:

- a plastic base (e.g., rear housing in Figs. 5a and 6a; See ¶ [0133], wherein it anticipates that that the plastic base is typically formed as a unitary molded plastic or element);
- a connection slot (i.e., space within sleeve 148 in Figs. 5a-5b), which is disposed in front

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of the plastic base and may be connected to a plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d) having at least one row of connection terminals (i.e., a set of four electrical contacts 176 in Fig. 5d; See ¶ [0141]);

- a tongue (i.e., tongue arrangement 150 of Figs. 5a-5b; See ¶ [0013]), which
  - has a first surface (i.e., upper side 158 of central insulating layer 152 in Fig. 5b) and a second surface (i.e., lower side 162 of said central insulating layer in Fig. 5b) disposed opposite the first surface (See ¶ [0140]), and
  - is disposed on one end of the plastic base and within the connection slot (See Fig. 5a),
    - such that chambers of the connection slot (i.e., hollow sections of said space within sleeve 148 in Figs. 5a-5b) on two sides of the tongue (i.e., on said upper and lower sides of said tongue arrangement 150 of Fig. 5b) make the plug (i.e., said A-type USB standard plug) be normally and oppositely inserted and positioned into the connection slot (i.e., inserting first orientation and second orientation; See ¶ [0109] and ¶ [0142]);
- at least one row of first contacts (i.e., a set of electrical contacts 154 of Fig. 5b) separately arranged on the first surface of the tongue (i.e., being disposed in grooves 156 on said upper side 158 of central insulation layer 152 in Fig. 5b),
  - wherein each of the first contacts is electrically connected to a first pin extending out of the plastic base (See Fig. 5b, wherein said electrical contact 154 connected to a pin extending out of said rear housing); and
- at least one row of second contacts (i.e., another set of electrical contacts 166 of Fig. 5b) separately arranged on the second surface of the tongue (i.e., being disposed in grooves on said lower side 162 of central insulation layer 152 in Fig. 5b),
  - wherein: each of the second contacts is electrically connected to a second pin extending out of the plastic base (See Fig. 5b, wherein said electrical contact 166 connected to a pin extending out of said rear housing);
- when the plug (i.e., said A-type USB standard plug) is normally inserted into the connection slot (i.e., first coupling orientation) with the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts 176 in Fig. 5d) facing the second surface of the tongue (i.e., said lower side of said central insulating layer in Fig. 5b), the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts (i.e., said four electrical contacts of said A-type USB standard plug are electrically connected to said another set of electrical contacts

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166 in Fig. 5e; See ¶ [0143]); and

- when the plug (i.e., said A-type USB standard plug) is oppositely inserted into the connection slot (i.e., second coupling orientation) with the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts 176 in Fig. 5d) facing the first surface of the tongue (i.e., said upper side of said central insulating layer in Fig. 5b), the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts (i.e., said four electrical contacts of said A-type USB standard plug are electrically connected to said set of electrical contacts 154 in Fig. 5e; See ¶ [0144]).

Referring to claim 2, Teicher teaches that

- the at least one row of first contacts (i.e., a set of electrical contacts 154 of Fig. 5b) and the first pins (i.e., pins connected to said electrical contact 154 in Fig. 5b) are formed on at least one row of first terminals (See the extended conductors for said contacts 154 in Fig. 5b and 5e);
  - the first terminal is integrally formed with the first contact, a first extension, a first fixing portion and the first pin (See Figs, 5a-5e);
- the at least one row of second contacts (i.e., another set of electrical contacts 166 of Fig. 5b) and the second pins are formed on at least one row of second terminals (See the extended conductors for said contacts 166 in Fig. 5b and 5e); and
  - the second terminal is integrally formed with the second contact, a second extension, a second fixing portion and the second pin (See Figs, 5a-5e).

Referring to claim 3, Teicher teaches that

- the first contacts of the row of first terminals (i.e., a set of electrical contacts 154 of Fig. 5b) and the second contacts of the row of second terminals (i.e., another set of electrical contacts 166 of Fig. 5b) respectively project beyond one of the surfaces of the tongue (i.e., said electrical contacts 154 project beyond the upper surface of tongue arrangement 150 and said electrical contacts 166 project beyond the lower surface of the tongue arrangement in Figs. 5a-5b).

Referring to claim 4, Teicher teaches that

- the chambers of the connection slot on the two sides of the tongue (i.e., hollow sections of space within sleeve 148 on upper side 158 and lower side 162 of tongue arrangement 150 in Fig. 5b; See ¶ [0109]) are formed with compatible profiles (i.e., existing together

without conflict; See Fig. 5a and ¶ [0140]),

- the at least one row of connection terminals (i.e., a set of four electrical contacts 176 of A-type USB standard plug 168 in Fig. 5d) are formed on only one of the surfaces of the plug (See Fig. 5d and ¶ [0141]), and
- the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts of A-type USB standard plug) are electrically connected to only one of the rows of contacts on one of the surfaces of the tongue (See Fig. 5e and ¶ [0142]).

Referring to claim 5, Teicher teaches that

- a metal housing (i.e., electrically conducting sleeve 148 of Fig. 5a) at least partially covering the plastic base (i.e., rear housing in Figs. 5a and 6a; See ¶ [0140]),
  - wherein the tongue (i.e., tongue arrangement 150 of Figs. 5a-5b) and the plastic base (i.e., said rear housing) are integrally formed (i.e., said tongue arrangement and said rear housing are connected together so as to make up a single complete unit of reversible USB socket in Fig. 5a).

Referring to claim 6, Teicher teaches that

- the tongue (i.e., tongue arrangement 150 of Figs. 5a-5b) is formed with through slots (i.e., grooves 156 of Fig. 5b) separately arranged (See Fig. 5b), and
- the first contacts of the first terminals (i.e., a set of electrical contacts 154 of Fig. 5b) and the second contacts of the second terminals (i.e., another set of electrical contacts 166 of Fig. 5b) are elastically moved in correspondence with the through slots (i.e., outwardly displacing with said grooves; See Figs. 5d-5e and ¶ [0140]).

Referring to claim 12, Teicher teaches that

- the plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d) has a plastic base (i.e., block 174 of Fig. 5d; See ¶ [0132], wherein it describe the block is typically formed from a molded plastic section) and a metal housing (i.e., metal sleeve of said A-type USB standard plug; See ¶¶ [0141]-[0142], wherein said metal sleeve is an electrically conducting shield 172 in Figs. 5c-5d),
  - the metal housing covers the plastic base (i.e., said metal sleeve 172 covers said block 174 in Fig. 5d),
- a chamber (i.e., hollow 170 of Fig. 5d) is formed between the metal housing and the plastic base (i.e., between said metal sleeve 172 and said block 174 in Fig. 5d), and
  - the chamber (i.e., said hollow) is fitted with the tongue (i.e., tongue arrangement 150

of Fig. 5e) when the plug (i.e., said A-type USB standard plug 168 in Fig. 5e) is inserted into the connection slot (i.e., being inserted into space within sleeve 148 in Figs. 5a-5b; See Fig. 5e and ¶¶ [0142]-[0143]).

However, the limitations recited in the claim 12 do not have a patentable weight because the claimed subject matter "plug" is not a part of the claimed invention "socket structure".

Referring to claim 14, Teicher teaches that

- the at least one row of first contacts and the at least one row of second contacts (See Fig. 5b) pertain to the same connection interface and have oppositely arranged serial numbers (See ¶ [0007] and ¶ [0147]), and
- the plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d) may be normally and oppositely inserted for electrical connection with the connection terminals of the plug facing upward or downward (i.e., reversible connection for coupling with a USB A-type standard connector (See Abstract).

Referring to claim 15, Teicher teaches that

- the socket structure (i.e., reversible universal serial bus (USB) receptacle (socket) in Figs. 5a-8g) is a universal serial bus (USB) socket (See ¶ [0008]), wherein
  - there are four rows of the first contacts and four rows of the second contacts (See Fig. 5b and ¶ [0109]).

Referring to claim 18, Teicher teaches that

- the tongue (i.e., tongue arrangement 150 of Figs. 5a-5b) is disposed at a middle within the connection slot (i.e., said tongue arrangement is disposed at a middle within sleeve 148 in Fig. 5a) so that the connection slot (i.e., space within said sleeve) is formed with symmetric profiles in up, down, left and right chambers of the tongue (i.e., hollow sections of said space within said sleeve is formed with symmetric profiles in up, down, left and right hollow sections of said tongue arrangement in Fig. 5a).

Referring to claim 19, Teicher teaches that

- at least one side (e.g., upper side) of the metal housing (i.e., electrically conducting sleeve 148 of Fig. 5a) projects inwardly to form at least one laterally elastically movable elastic sheet (See Fig. 5a and ¶ [0140]), and
- when the plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d) is inserted into the connection slot (i.e., space within sleeve 148 in Figs. 5a-5b), the at least one elastic

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sheet may rest against the plug or the tongue to prevent the plug from turning (See Fig. 6e and ¶ [0149]).

Referring to claim 21, Teicher teaches that

- the at least one elastic sheet (i.e., inwardly projected and formed two laterally elastically movable parts on electrically conducting sleeve 148 in Figs. 5a-5b) comprises a first outer elastic sheet (i.e., said laterally elastically movable parts on lower side in Figs. 5a-5b) and a second outer elastic sheet (i.e., said laterally elastically movable parts on upper side in Figs. 5a-5b) which are disposed above and below of the tongue (i.e., disposed above and below of tongue arrangement 150 in Fig. 5a) on one side of the connection slot (i.e., on one side of sleeve 148 in Fig. 5a),
- the plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d) has a plastic base (i.e., block 174 of Fig. 5d; See ¶ [0132], wherein it describe the block is typically formed from a molded plastic section) and a metal housing (i.e., metal sleeve of said A-type USB standard plug; See ¶¶ [0141]-[0142], wherein said metal sleeve is an electrically conducting shield 172 in Figs. 5c-5d) covering the plastic base (i.e., said metal sleeve 172 covers said block 174 in Fig. 5d),
- a chamber (i.e., hollow 170 of Fig. 5d) is formed between the metal housing and the plastic base (i.e., between said metal sleeve 172 and said block 174 in Fig. 5d), and
- when the plug (i.e., said A-type USB standard plug 168 in Fig. 5e) is inserted into the connection slot (i.e., being inserted into space within sleeve 148 in Figs. 5a-5b), the chamber (i.e., said hollow) is fitted with the tongue (i.e., tongue arrangement 150 of Fig. 5e; See Fig. 5e and ¶¶ [0142]-[0143]),
- the first outer elastic sheet on one side of the metal housing (i.e., said laterally elastically movable parts on lower side) is pushed away by the plug (i.e., said A-type USB standard plug 168 in Fig. 5e), and the second outer elastic sheet (i.e., said laterally elastically movable parts on upper side) rests against one of the surfaces of the plug (i.e., upper surface of said A-type USB standard plug 168 in Fig. 5e).

However, the limitations recited in the claim 21 regarding the structure of the subject matter "plug" do not have a patentable weight because the claimed subject matter "plug" is not a part of the claimed invention "socket structure".

Referring to claim 24, Teicher teaches that

- one end of the elastic sheet (i.e., end of inwardly projected and formed two laterally

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elastically movable parts on electrically conducting sleeve 148 in Figs. 5a-5b) is connected to one side of the metal housing near a front end of the metal housing (i.e., said laterally elastically movable parts are connected one side of said sleeve near the front end of the sleeve in Figs 5a-5b) and extends inwardly in an arced manner (See Figs. 5a-5b, wherein said laterally elastically movable parts are extended inwardly in an arced manner),

- the elastic sheet (i.e., said laterally elastically movable parts) has a projection (i.e., outward displacement; See Figs. 5d-5e), and
- the elastic sheet (i.e., said laterally elastically movable parts) is elastically moved outwardly when the projection is pressed (See Fig. 5e).

Referring to claim 34, Teicher discloses a socket structure with duplex electrical connection (i.e., reversible universal serial bus (USB) receptacle (socket) in Figs. 5a-8g; See Abstract and ¶ [0008]), the socket structure (i.e., said reversible USB receptacle) comprising:

- a plastic base (e.g., rear housing in Figs. 5a and 6a; See ¶ [0133], wherein it anticipates that that the plastic base is typically formed as a unitary molded plastic or element);
- a connection slot (i.e., space within sleeve 148 in Figs. 5a-5b), which is disposed in front of the plastic base and configured to be connected to a plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d) having at least one row of connection terminals (i.e., a set of four electrical contacts 176 in Fig. 5d; See ¶ [0141]);
- a tongue (i.e., tongue arrangement 150 of Figs. 5a-5b; See ¶ [0013]), which
  - has a first surface (i.e., upper side 158 of central insulating layer 152 in Fig. 5b) and a second surface (i.e., lower side 162 of said central insulating layer in Fig. 5b) disposed opposite the first surface (See ¶ [0140]), and
  - is disposed on one end of the plastic base and within the connection slot (See Fig. 5a),
    - such that chambers of the connection slot (i.e., hollow sections of said space within sleeve 148 in Figs. 5a-5b) on two sides of the tongue (i.e., on said upper and lower sides of said tongue arrangement 150 of Fig. 5b) allow the plug (i.e., said A-type USB standard plug) to be normally and oppositely inserted and positioned into the connection slot (i.e., inserting first orientation and second orientation; See ¶ [0109] and ¶ [0142]);
- at least one row of first contacts (i.e., a set of electrical contacts 154 of Fig. 5b) separately arranged on the first surface of the tongue (i.e., being disposed in grooves

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156 on said upper side 158 of central insulation layer 152 in Fig. 5b),

- wherein each of the first contacts is electrically connected to a respective first pin extending out of the plastic base (See Fig. 5b, wherein said electrical contact 154 connected to a pin extending out of said rear housing); and

- at least one row of second contacts (i.e., another set of electrical contacts 166 of Fig. 5b) separately arranged on the second surface of the tongue (i.e., being disposed in grooves on said lower side 162 of central insulation layer 152 in Fig. 5b),
  - wherein: each of the second contacts is electrically connected to a respective second pin extending out of the plastic base (See Fig. 5b, wherein said electrical contact 166 connected to a pin extending out of said rear housing);
- when the plug (i.e., said A-type USB standard plug) is normally inserted into the connection slot (i.e., first coupling orientation) with the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts 176 in Fig. 5d) facing the second surface of the tongue (i.e., said lower side of said central insulating layer in Fig. 5b), the at least one row of connection terminals of the plug are electrically connected to the at least one row of second contacts (i.e., said four electrical contacts of said A-type USB standard plug are electrically connected to said another set of electrical contacts 166 in Fig. 5e; See ¶ [0143]); and
- when the plug (i.e., said A-type USB standard plug) is oppositely inserted into the connection slot (i.e., second coupling orientation) with the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts 176 in Fig. 5d) facing the first surface of the tongue (i.e., said upper side of said central insulating layer in Fig. 5b), the at least one row of connection terminals of the plug are electrically connected to the at least one row of first contacts (i.e., said four electrical contacts of said A-type USB standard plug are electrically connected to said set of electrical contacts 154 in Fig. 5e; See ¶ [0144]).

Referring to claim 47, Teicher teaches that

- the at least one row of first contacts (i.e., a set of electrical contacts 154 of Fig. 5b) and the respective first pins (i.e., pins connected to said electrical contacts 154 and extending out of rear housing in Fig. 5a) are formed on respective ones of a row of first terminals (See Fig. 5b and ¶ [0140]).

Referring to claim 48, Teicher teaches that

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- a first contact (e.g., the left-most electrical contact of a set of electrical contacts 154 in Fig. 5b) and a second contact (e.g., the right-most electrical contact of the set of electrical contacts 154 in Fig. 5b) respectively project beyond one surface of the tongue (See Figs. 5a-5d and ¶ [0140]).

Referring to claim 49, Teicher teaches that

- each of the first contacts (i.e., each of electrical contacts 154 in Fig. 5b) and each of the second contacts (i.e., each of electrical contacts 166 in Fig. 5b) are within the connection slot (i.e., space within sleeve 148 in Figs. 5a-5b).

Referring to claim 50, Teicher discloses a socket structure configured for a duplex electrical connection (i.e., reversible universal serial bus (USB) receptacle (socket) in Figs. 5a-8g; See Abstract and ¶ [0008]) with a plug (i.e., A-type USB standard plug 168 in Figs. 5c-5d), the socket structure (i.e., said reversible USB receptacle) comprising:

- a plastic base (e.g., rear housing in Figs. 5a and 6a; See ¶ [0133], wherein it anticipates that that the plastic base is typically formed as a unitary molded plastic or element) ;
- a connection slot (i.e., space within sleeve 148 in Figs. 5a-5b), which is disposed in front of the plastic base and configured to be connected to the plug (i.e., said A-type USB standard plug) having at least one row of connection terminals (i.e., a set of four electrical contacts 176 in Fig. 5d; See ¶ [0141]);
- a tongue (i.e., tongue arrangement 150 of Figs. 5a-5b; See ¶ [0013]), comprising
  - a first surface (i.e., upper side 158 of central insulating layer 152 in Fig. 5b) and a second surface (i.e., lower side 162 of said central insulating layer in Fig. 5b) disposed opposite the first surface (See ¶ [0140]),
  - the tongue (i.e., said tongue arrangement) being disposed on one end of the plastic base and within the connection slot (See Fig. 5a),
    - such that chambers of the connection slot (i.e., hollow sections of said space within sleeve 148 in Figs. 5a-5b) on two sides of the tongue (i.e., on said upper and lower sides of said tongue arrangement 150 of Fig. 5b) allow the plug (i.e., said A-type USB standard plug) to be normally and oppositely inserted and positioned into the connection slot (i.e., inserting first orientation and second orientation) based on an operational state of when the socket structure is connected to the plug (i.e., based on the state of coupling orientation; See ¶ [0109] and ¶ [0142]);

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- at least one row of first contacts (i.e., a set of electrical contacts 154 of Fig. 5b) separately arranged on the first surface of the tongue (i.e., being disposed in grooves 156 on said upper side 158 of central insulation layer 152 in Fig. 5b),
  - wherein each of the first contacts is electrically connected to a respective at least first pin extending out of the plastic base (See Fig. 5b, wherein said electrical contact 154 connected to a pin extending out of said rear housing); and
- at least one row of second contacts (i.e., another set of electrical contacts 166 of Fig. 5b) separately arranged on the second surface of the tongue (i.e., being disposed in grooves on said lower side 162 of central insulation layer 152 in Fig. 5b),
  - wherein: each of the second contacts is electrically connected to a respective at least second pin extending out of the plastic base (See Fig. 5b, wherein said electrical contact 166 connected to a pin extending out of said rear housing); and,
- the socket structure (i.e., said reversible universal serial bus (USB) receptacle (socket)) is configured for two separate operational states:
  - a first operational state (i.e., first coupling orientation) when the plug (i.e., said A-type USB standard plug) is normally inserted into the connection slot with the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts 176 in Fig. 5d) facing the second surface of the tongue (i.e., said lower side of said central insulating layer in Fig. 5b), the at least one row of connection terminals of the plug are configured to electrically connected to the at least one row of second contacts (i.e., said four electrical contacts of said A-type USB standard plug are configured to electrically connected to said another set of electrical contacts 166 in Fig. 5e; See ¶ [0143]); and
  - a second operational state (i.e., second coupling orientation) when the plug (i.e., said A-type USB standard plug) is oppositely inserted into the connection slot (i.e., second coupling orientation) with the at least one row of connection terminals of the plug (i.e., said set of four electrical contacts 176 in Fig. 5d) facing the first surface of the tongue (i.e., said upper side of said central insulating layer in Fig. 5b), the at least one row of connection terminals of the plug are configured to electrically connected to the at least one row of first contacts (i.e., said four electrical contacts of said A-type USB standard plug are electrically connected to said set of electrical contacts 154 in Fig. 5e; See ¶ [0144]).

Referring to claims 35 and 51, Teicher teaches that

- a metal housing (i.e., electrically conducting sleeve 148 of Fig. 5a) at least partially covering the plastic base (i.e., rear housing in Figs. 5a and 6a; See ¶ [0140]).

Referring to claims 36 and 52, Teicher teaches that

- the tongue (i.e., tongue arrangement 150 of Figs. 5a-5b) and the plastic base (i.e., said rear housing) are integrally formed (i.e., said tongue arrangement and said rear housing are connected together so as to make up a single complete unit of reversible USB socket in Fig. 5a).

Referring to claims 37 and 53, Teicher teaches that

- a plurality of slots (i.e., grooves on upper side 158 in Fig. 5b) in the tongue (i.e., tongue arrangement 150 of Figs. 5a-5b) for respective ones of the row of first contacts (i.e., for respective ones of electrical contacts 154 in Fig. 5d).

Referring to claims 38 and 54, Teicher teaches that

- a plurality of slots (i.e., grooves on lower side 162 in Fig. 5b) in the tongue (i.e., tongue arrangement 150 of Figs. 5a-5b) for respective ones of the row of second contacts (i.e., for respective ones of electrical contacts 166 in Fig. 5d).

Referring to claims 39 and 55, Teicher teaches that

- a rear cover on the plastic base (See Figs. 5a and 6a).

Referring to claims 40 and 56, Teicher teaches that

- each contact (i.e., respective ones of electrical contacts 154 and 166 in Fig. 5d) is a portion of a respective terminal (See Figs. 5a-5e).

Referring to claims 41 and 57, Teicher teaches that

- each of the first contacts (i.e., each of electrical contacts 154 in Fig. 5b) is electrically connected to the respective first pin extending out of the plastic base through a rear cover (See Figs. 5b, 5d, and 6a; See ¶¶ [0145]-[0146]).

Referring to claims 42 and 58, Teicher teaches that

- each of the second contacts (i.e., each of electrical contacts 166 in Fig. 5b) is electrically connected to the respective second pin extending out of the plastic base through a rear cover (See Figs. 5b, 5d, and 6a; See ¶¶ [0145]-[0146]).

Referring to claims 43 and 59, Teicher teaches that

- at least one row of first terminals (i.e., row of electrical contacts 154 of Fig. 5b) separately arranged on the first surface of the tongue (i.e., separately arranged on upper side 158 from row of electrical contacts 166 on lower side 162 of central insulating layer 152 in Fig. 5b).

Referring to claims 44 and 60, Teicher teaches that

- at least one row of second terminals (i.e., row of electrical contacts 166 of Fig. 5b) separately arranged on the second surface of the tongue (i.e., separately arranged on lower side 162 from row of electrical contacts 154 on upper side 158 of central insulating layer 152 in Fig. 5b).

Referring to claims 45 and 61, Teicher teaches that

- at least two of the first contacts are not in electrical communication with one another (See Fig. 5b, wherein all four contacts 154 in grooves 156 are electrically separate); .

Referring to claims 46 and 62, Teicher teaches that

- at least two of the second contacts are not in electrical communication with one another (See Fig. 5b, wherein all four contacts 166 in grooves on lower side 162 are electrically separate).

14. The following is a quotation of pre-AIA 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claim 13 is rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Teicher [US 2006/0024997 A1] as applied to claims 1-6, 12, 14, 15, 18, 19, 21, 24, and 34-62 above, and further in view of Ni et al. [US 7,269,004 B1; hereinafter "Ni"].

Referring to claim 13, Teicher discloses all the limitations of the claim 13 except that does not teach the plug does not have a metal housing, and when the plug is inserted into the connection slot, the plug may be connected to a top side or a bottom side of the tongue so that two plugs may be simultaneously connected to the top and bottom sides of the tongue.

Ni discloses a low-profile USB device (See Abstract) comprises:

- a plug (i.e., plug section 114 in Fig. 1(A)) does not have a metal housing (See col. 5, line 65 through col. 6, line 4), and
- when the plug (i.e., said plug section) is inserted into a connection slot (i.e., lower region 25A of female USB socket connector 22 in Figs. 2(A)-2(B)), the plug (i.e., said plug section) may be connected to a bottom side of a tongue (i.e., a lower surface of connector substrate 26 in Fig. 2(B); See col. 6, lines 5-23).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used said low-profile USB device, as disclosed by Ni, with said socket structure with duplex electrical connection (i.e., reversible universal serial bus (USB) receptacle (socket)), as disclosed by Teicher, in order to the plug (i.e., said plug section of Ni) may be connected to a top side or a bottom side of the tongue (i.e., the first surface or the second surface of tongue arrangement in Teicher) so that two plugs (i.e., two low-profile USB devices of Ni) may be simultaneously connected to the top and bottom sides of the tongue (i.e., being structurally insertable into hollow at the side of the first surface of the tongue arrangement and hollow at the side of the second surface of the tongue arrangement in Teicher) for the advantage of providing an easy to carry in a user's pocket or to incorporate into a utility tool (See Ni, col. 3, lines 34-39).

However, the limitations recited in the claim 13 do not have a patentable weight because the claimed subject matter "plug" is not a part of the claimed invention "socket structure".

Allowable Subject Matter

16. Claim 22 is objected to as being dependent upon a rejected base claims 1, 5, 19, and 21, but would be allowable if the claim 22 is rewritten in independent form including all of the limitations of the base claims 1, 5, 19, 21, and overcomes the rejections under 35 U.S.C. § 251 and under 35 U.S.C. § 112 (pre-AIA), second paragraph.

17. Claim 26 is objected to as being dependent upon a rejected base claims 1-3, but would be allowable if the claim 26 is rewritten in independent form including all of the limitations of the base claims 1-3 and overcomes the rejections under 35 U.S.C. § 251 and under 35 U.S.C. § 112 (pre-AIA), second paragraph.

18. The following is a statement of reasons for the indication of allowable subject matter over the prior art of record:

With respect to claim 22, the claim limitations of the claim 22 are deemed allowable over

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the prior art of record as the prior art fails to teach or suggest that at least one elastic sheet comprising two inner elastic sheets disposed on inner sides of the two outer elastic sheets, and the two inner elastic sheets respectively rest against top and bottom surfaces on one side of the tongue.

With respect to claim 26, the claim limitations of the claim 26 are deemed allowable over the prior art of record as the prior art fails to teach or suggest that a front end of the first contact has a first guide-in sheet, a front end of the second contact has a second guide-in sheet, the first contact and the second contact are vertically aligned with each other, and the first guide-in sheet and second guide-in sheet are staggered in a left to right direction.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Chen [US 7,628,655 B1] discloses electrical connector and inserting method thereof.
- Wan et al. [US 7,731,535 B1] disclose receptacle connector assembly.
- Daly et al. [US 6,190,190 B1] disclose reversible serial connector for digital devices.
- Chiang [US 7,517,253 B1] discloses connector socket for eSATA and USB plugs.
- Han [US 2007/0173129 A1] discloses connector.
- Huang [US 2007/0072491 A1] discloses integrated signal connecting port.
- Tsai [US 2006/0183371 A1] discloses electrical connector having a fastening assembly and a metal housing that pertain to different parts.
- Le [US 6,609,928 B1] discloses stack universal serial bus connector.
- Igarashi et al. [US 2007/0049115 A1] disclose electrical connector.
- Trenne [US 2007/0243726 A1] discloses reversible universal serial bus connection interface for USB connectors and universal serial bus ports.
- Chou et al. [US 7,182,646 B1] disclose connectors having a USB-like form factors for supporting USB and non-USB protocols.
- Zheng et al. [JP 2009/043717 A] disclose socket connector.

The Examiner refers to Zheng et al. [JP 2009/043717 A] reference as a prior art made of record and not relied upon the claim rejection(s) in the instant Office Action, and it is referred to the original copy of foreign reference in foreign language (i.e., Japanese). The Examiner attaches a machine translated copy of the reference for the convenience of the reissue applicant. However, the Examiner cautions the reissue applicant that the Office is not responsible for any erroneous interpretation resulting from inaccuracies between the original

foreign language reference and the machine translation of the reference, as the machine translation may not reflect the original precisely.

20. A shortened statutory period for response to this action is set to expire **THREE (3)** months from the mailing date of this action.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Christopher E. Lee whose telephone number is (571) 272-3637. The Examiner can normally be reached on 9:00am to 5:00pm. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Andrew J. Fischer can be reached on (571) 272-6779. The FAX phone number for the organization where this application or proceeding is assigned is (571) 273-9900.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://www.uspto.gov/patents/process/status/index.jsp. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or (571) 272-1000.

Signed:

/Christopher E. Lee/

Christopher E. Lee, Primary Examiner
Central Reexamination Unit / Art Unit 3992

Conferees:

/MY TRANG TON/
Primary Examiner, Art Unit 3992

/ANDREW J. FISCHER/
Supervisory Patent Examiner, Art Unit 3992

Notice of References Cited	Application/Control No. 17/020,359	Applicant(s)/Patent Under Reexamination Tsai, Chou Hsien	
	Examiner Christopher E Lee	Art Unit 3992	Page 1 of 1

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*	B	US-7269004-B1	09-2007	Ni; Jim	H05K5/0278	361/679.41
*	C	US-7517253-B1	04-2009	Chiang; Jui-Tu	H01R12/58	439/218
*	D	US-20070072491-A1	03-2007	Huang; Jung Hung	H01R27/00	439/660
*	E	US-20060183371-A1	08-2006	Tsai; Chou Hsuan	H01R12/716	439/541.5
*	F	US-6609928-B1	08-2003	Le; Chanh	H01R13/658	439/541.5
*	G	US-20070049115-A1	03-2007	Igarashi; Isao	H01R27/00	439/607.01
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	J					
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	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
	17/020,359	Tsai, Chou Hsien
	Examiner	Art Unit
	Christopher E Lee	3992

CPC - Searched*		
Symbol	**Date**	**Examiner**
H01R 29/00, 12/58, 27/00, 12/716, 13/658, 13/642	12/6/2021- 12/18/2021	/CEL/
H05K 5/0278; G06K 19/07732	12/6/2021- 12/18/2021	/CEL/

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
439	217, 218, 660, 541.5, 607.01, 67, 660	12/6/2021- 12/18/2021	/CEL/
361	679.41	12/6/2021- 12/18/2021	/CEL/

* 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**
Litigation Search and Review conducted	11/02/2020	/CEL/
Inventor Name Search (PALM) performed	12/02/2021	/CEL/
Review prosecution history of foreign applications TW098112573, TW098117405, TW098210021, TW099100847, and US application 12/759,408.	12/06/2021	/CEL/
H01R 29/00, 12/58, 27/00, 12/716, 13/658, 13/642; H05K 5/0278; G06K 19/07732	12/6/2021- 12/18/2021	/CEL/
439/217, 218, 660, 541.5, 607.01, 67, 660; 361/679.41	12/6/2021- 12/18/2021	/CEL/

/Christopher E. Lee/ Primary Examiner, Art Unit 3992	

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	17/020,359	Tsai, Chou Hsien
	Examiner	Art Unit
	Christopher E Lee	3992

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

/Christopher E. Lee/ Primary Examiner, Art Unit 3992	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	Christopher E Lee	3992

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/03/2022								
	1	✓								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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	Examiner	**Art Unit**
	Christopher E Lee	3992

CLAIM		DATE								
Final	Original	01/03/2022								
	43	✓								
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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	1	of	10	Attorney Docket Number	10186PAT-1-REI

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				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
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	232	Patent Registration Information and List of References cited by Examiner in German Patent Publication No. 102010014793.1, accurate as of Jul. 21, 2020, 2 pages.

Examiner Signature	Electronic Signature on the last page (37 CFR 1.97 and 1.98)	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. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /CEL/

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	10	of	10	Attorney Docket Number	10186PAT-1-REI

	233	Patent Registration Information and List of References cited by Examiner in German Patent Publication No. 202010017854.1, accurate as of Jul. 21, 2020, 2 pages.
	234	Official Action (with English translation) for Japanese Patent Application No. 2010-091610, dated Jul. 12, 2010, 2 pages.
	235	Official Action (with English translation) for Japanese Patent Application No. 2012-002496, dated May 31, 2012, 4 pages.
	236	Official Action (with English translation) for Korean Patent Application No. 2010-0034310, dated Jul. 27, 2011, 4 pages.
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	238	Official Action (with English translation) for Korean Patent Application No. 2010-0034310, dated May 18, 2012, 2 pages.
	239	Unpublished Taiwanese Patent Application No. 098112573 (no English translation available), filed Apr. 15, 2009, 25 pages.
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	241	Unpublished Taiwanese Patent Application No. 099100847 (no English translation available), filed Jan. 13, 2010, 53 pages.
	242	Bibliographic Data and Prosecution History (with English mechanical translation) for Taiwanese Patent Application No. 098210021, first published Jun. 5, 2009, 17 pages.
	243	Bibliographic Data and Prosecution History (with English mechanical translation) for Taiwanese Patent Application No. 099108987, first published Oct. 16, 2010, 107 pages.
	244	Bibliographic Data and Prosecution History (with English mechanical translation) for Taiwanese Patent Application No. 099224051, first published Nov. 11, 2011, 150 pages.
	245	Bibliographic Data and Prosecution History (with English mechanical translation) for Taiwanese Patent Application No. 100203503, first published Nov. 11, 2011, 69 pages.
	246	Bibliographic Data and Prosecution History (with English mechanical translation) for Taiwanese Patent Application No. 099225602, first published Apr. 1, 2012, 78 pages.
	247	Bibliographic Data and Prosecution History (with English mechanical translation) for Taiwanese Patent Application No. 101208435, first published Dec. 11, 2012, 116 pages.
	248	Official Action for U.S. Patent Application No. 12/759408, dated Oct. 17, 2011 (Attorney Ref. No. 10186PAT-1), 5 pages. RESTRICTION REQUIREMENT.
	249	Official Action for U.S. Patent Application No. 12/759408, dated Dec. 7, 2011 (Attorney Ref. No. 10186PAT-1), 11 pages.
	250	Notice of Allowance for U.S. Patent Application No. 12/759408, dated Mar. 16, 2012 (Attorney Ref. No. 10186PAT-1), 6 pages.

Examiner Signature	/Christopher E. Lee/	Date Considered	12/03/2021

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /CEL/

PE2E SEARCH - Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
L4	25	socket SAME plug SAME tongue SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 03:09 PM
L6	54	socket SAME tongue SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 03:16 PM
L8	562	socket SAME tongue SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 04:23 PM
L10	11940	socket SAME tongue	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 04:32 PM
L12	2524	socket SAME tongue SAME connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 04:33 PM
L14	461	reversible WITH USB WITH connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 10:17 PM
L16	38	socket SAME plug SAME USB SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 10:26 PM
L18	400	socket SAME plug SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/06 10:27 PM
L21	8410	socket WITH tongue	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/07 10:01 AM
L24	449	218/140.ccls.	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/07 11:59 AM
L26	6470	electrical WITH socket WITH structure	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/07 01:32 PM
L28	2449	socket SAME plug SAME tongue	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/07 01:54 PM
L30	59958	USB connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/07 03:31 PM
L31	632	(USB WITH connector) SAME reversible	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/07 03:31 PM
L33	4282	USB SAME plug SAME socket SAME connector	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/09 09:40 AM
L36	1019	reversible SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/09 05:48 PM

L38	122	reversible SAME connector SAME socket SAME plug	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/10 04:50 PM
L41	0	(USB plug) SAME (no WITH metal sleeve)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 05:27 PM
L42	22	(USB plug) SAME (metal sleeve)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 05:27 PM
L44	0	(USB plug) SAME (without WITH (metal WITH case))	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 05:28 PM
L45	90	(USB plug) SAME (metal WITH case)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 05:29 PM
L47	53069	(two WITH plug$1) SAME (socket OR female OR receptacle)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 08:09 PM
L48	4914	((two OR multiple OR plural) plug$1) SAME (socket OR female OR receptacle)	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 08:10 PM
L49	182	((two OR multiple OR plural) plug$1) SAME (socket OR female OR receptacle) SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/17 08:10 PM
L51	28	guide-in sheet	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/18 08:01 PM
L53	17	guide-in SAME USB	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/18 08:02 PM
L55	146	guide-in SAME contact	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/18 08:04 PM
L56	96	guide-in WITH contact	(US-PGPUB; USPAT; EPO; JPO; DERWENT)	ADJ	ON	ON	2021/12/18 08:04 PM

PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

Substitute for form 1449/PTO				Complete if Known	
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				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
(Use as many sheets as necessary)				Art Unit	2833
				Examiner Name	
Sheet	1	of	2	Attorney Docket Number	10186PAT-1-REI

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/CEL/	1	6530793	03/11/2003	Eichhorn et al.	
	2	6964582	11/15/2005	Zhuang et al.	
	3	7094089	08/22/2006	Andre et al.	
	4	7275940	10/02/2007	Chen	
	5	7458825	12/02/2008	Atsmon et al.	
/CEL/	6	2004/0023560	02/05/2004	Swoboda	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]; Number[4]; Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
/CEL/	7	CN 1370343	09/18/2002	BRAUN GMBH		(with English abstract)
	8	CN 1969428	05/23/2007	WALLETEX MICROELECTRONICS LTD		(with English abstract)
	9	CN 2682660	03/02/2005	FOXCONN KUNSHAN COMP INTERFACE		(with English abstract)
	10	CN 2733636	10/12/2005	YAO LIHE		(with English abstract)
	11	CN 2791923	06/28/2006	ANGUO INTERNAT SCIENCE TECHNOL		(with English abstract)
	12	CN 201478495	05/19/2010	INVENTEC CORP		(with English abstract)
	13	CN 201594633	09/29/2010	HEMAO DONGGUAN ELECTRONIC & TECHNOLOGIES CO LTD		(with English abstract)
	14	CN 201717389	01/19/2011	ZTE CORP		(with English abstract)
/CEL/	15	WO 2008/065659	06/05/2008	WALLETEX MICROELECTRONICS LTD		

Examiner Signature	Electronic Signature on the last page (37 CFR 1.97 and 1.98)	Date Considered	

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				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
				Art Unit	2833
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	10186PAT-1-REI

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and/or country where published.

Examiner Signature	/Christopher E. Lee/	Date Considered	12/03/2021

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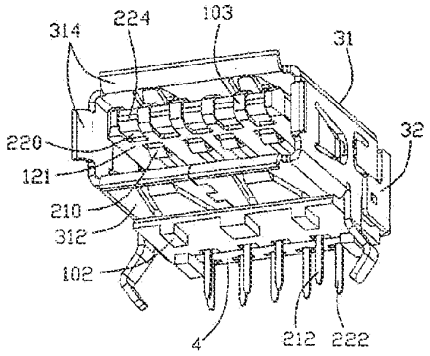
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最終頁に続く

(54)【発明の名称】ソケットコネクタ

(57)【要約】
【課題】本発明は、信号を転送する速度を高めるソケットコネクタを提供することを目的とする。
【解決手段】本発明のソケットコネクタは、絶縁性本体と、第１、第２端子グループと、遮蔽部材とを備える。絶縁性本体は、相手面と実装面とを含み、主体部と該主体部から前向きに延在して複数の第２端子溝と凹溝とが形成される舌板とを有する。第１端子グループは、前記絶縁性本体の第２端子溝に固着される第１固持部と、該第１固持部の前端に設けられる第１接触部と、絶縁性本体から延出する第１半田接続部とを含む。第２端子グループは、前記絶縁性本体の凹溝に固着される第２接触部と、該第２接触部と連接する第２固持部と、絶縁性本体から延出する第２半田接続部とを含む。遮蔽部材は、頂面と底面と一対の側面と前記舌板を収納ための収納穴とを有する。前記第１、第２接触部が舌板の同じ側に配置され、異なる高度に位置する。
【選択図】図１Ｂ



Samsung, EX1019, p. 137

【特許請求の範囲】
【請求項１】
相手面と実装面とを含み、主体部と該主体部から前向きに延在して複数の第２端子溝と凹溝とが形成される舌板とを有する絶縁性本体と、
前記絶縁性本体の第２端子溝に固着される第１固持部と、該第１固持部の前端に設けられる第１接触部と、絶縁性本体から延出する第１半田接続部とを含む第１端子グループと、
前記絶縁性本体の凹溝に固着される第２接触部と、該第２接触部と連接する第２固持部と、絶縁性本体から延出する第２半田接続部とを含む第２端子グループと、
頂面と底面と一対の側面と前記舌板を収納するための収納穴とを有する遮蔽部材と、
を備え、前記第１、第２接触部が舌板の同じ側に配置され、異なる高度に位置することを特徴とするソケットコネクタ。
【請求項２】
前記第１接触部が弾性的な構造に製造され、第２接触部が平板状の構造に製造されることを特徴とする請求項１に記載のソケットコネクタ。
【請求項３】
前記舌板の長さに沿って、第２接触部が一列に配置され、第１接触部が第２接触部の後に一列に配置されることを特徴とする請求項１に記載のソケットコネクタ。
【請求項４】
前記舌板は、当接面と、該当接面と対向する係合面とを含み、前記凹溝と第２端子溝が当接面から凹まされ、舌板の係合面には、第２固持部を収納するための第１端子溝が形成され、第１、第２固持部が舌板の両側に配置され、第２固持部と第２接触部の間には折部が設けられ、舌板の前端には、当接面と係合面とを貫通して前記折部を収納するための凹部が形成されることを特徴とする請求項１に記載のソケットコネクタ。
【請求項５】
前記第１接触部には、相手コネクタと相対するための第１接触点が設けられ、第２接触部には、相手コネクタと相対するための第２接触点が設けられ、第１、第２接触点が舌板の当接面に配置されることを特徴とする請求項４に記載のソケットコネクタ。
【請求項６】
前記第２舌板の寸法は、標準のＵＳＢ２．０Ａ型のソケットコネクタの対応する舌板の寸法と略同一であり、第１端子グループがパワー端子と第１対の差分信号端子と第１接地端子とを含み、第２端子グループが並列に配置される第２対の差分信号端子と、第２接地端子と、第３対の差分信号端子とを有することを特徴とする請求項１に記載のソケットコネクタ。
【請求項７】
前記実装面が遮蔽部材の底面の上方に位置することを特徴とする請求項１に記載のソケットコネクタ。
【請求項８】
前記絶縁性本体には、導電端子を定位するための固定板が設けられ、主体部の後端には固定板を収納する凹所が形成され、第１、第２端子グループがそれぞれ固定板の両側に配置されることを特徴とする請求項１に記載のソケットコネクタ。
【請求項９】
前記絶縁性本体の収納穴は上向きに開口する相手口を含み、前記舌板が実装面と直交することを特徴とする請求項１に記載のソケットコネクタ。
【請求項１０】
前記相手面が実装面に対して傾斜するか或いは平行であるか或いは直交することを特徴とする請求項１に記載のソケットコネクタ。
【発明の詳細な説明】
【技術分野】
【０００１】

Samsung, EX1019, p. 138

本発明は、電気コネクタに関し、特に、ＵＳＢ（Ｕｎｉｖｅｒｓａｌ Ｓｅｒｉａｌ Ｂｕｓ）標準に符合したソケットコネクタに関するものである。

【背景技術】

【０００２】

従来技術のＵＳＢコネクタは、プラグとソケットとを具備する。プラグは、ケブールと該ケブールを被覆する絶縁本体とを有する。該絶縁本体は、舌片と、舌片に装着される四つのプラグ端子と、前記舌片とプラグ端子とを被覆するハウジングとを備える。舌片の上表面とハウジングとの間には、ソケットの舌片を収納するための収納孔が形成される。プラグ端子は、パワー端子と、負信号端子と、正信号端子と、接地端子とを含む。ソケットは舌片と、舌片の下表面に実装される四つのソケット端子と、ハウジングとを備える、前記ソケット端子はパワー端子と、負信号端子と、正信号端子と、接地端子とを含む。舌片の下表面とハウジングとの間には、プラグの舌片を収納するための収納孔が形成される。プラグがソケットと連接する時、ソケット端子がプラグ端子と電気接続する。

【発明の開示】

【発明が解決しようとする課題】

【０００３】

信号を転送する速度を高めるため、通常の端子には複数の端子を増加する必要がある。同時に、通常のＵＳＢコネクタが占めるスペースを増加させないことが求められる。

【０００４】

そこで本発明の目的は、信号を転送する速度を高めるソケットコネクタを提供することにある。

【課題を解決するための手段】

【０００５】

前記目的を達成するために、本発明のソケットコネクタは、絶縁性本体と、第１、第２端子グループと、遮蔽部材とを備える。絶縁性本体は、相手面と実装面とを含み、主体部と該主体部から前向きに延在して複数の第２端子溝と凹溝とが形成される舌板とを有する。第１端子グループは、前記絶縁性本体の第２端子溝に固着される第１固持部と、該第１固持部の前端に設けられる第１接触部と、絶縁性本体から延出する第１半田接続部とを含む。第２端子グループは、前記絶縁性本体の凹溝に固着される第２接触部と、該第２接触部と連接する第２固持部と、絶縁性本体から延出する第２半田接続部とを含む。遮蔽部材は、頂面と底面と一対の側面と前記舌板を収納するための収納穴とを有する。前記第１、第２接触部が舌板の同じ側に配置され、異なる高度に位置する。

【発明の効果】

【０００６】

従来の技術に比べると、本発明は以下の長所がある。本発明のソケットコネクタには、複数の差分信号端子が増加される。これにより、信号を転送する速度が高められる。

【発明を実施するための最良の形態】

【０００７】

図１Ａ～図６及び図２１～２２を参照すると、本発明のソケットコネクタは、ＵＳＢ２．０標準のＡ型のプラグコネクタ８或いは第２プラグ７と連接するＵＳＢソケットコネクタ１００である。ＵＳＢ２．０標準プラグのＡ型のコネクタ８の舌片８０には、四つの平板状の接点８１が設けられる。第２プラグ７の舌片７０の寸法がＵＳＢ２．０標準のＡ型のプラグ８の舌板８０の寸法と略同一である。舌片７０には四つの平板状の接点７１と５つの付加接点７２とが設けられる。該ソケットコネクタ１００は、絶縁性本体１と、該絶縁性本体１に挿入される複数の導電端子２と、導電端子２を定位するための定位部材４と、絶縁性本体１を覆う遮蔽部材３とを備える。

【０００８】

絶縁性本体１は、主体部１１と、該主体部１１から突出する舌板１２とを備える。主体部１１の側面には、複数のスロット１１７が形成される。主体部１１の後面には、阻止板１１４が設けられる。舌板１２の寸法がＵＳＢ２．０標準プラグのＡ型のコネクタ８の舌

Samsung, EX1019, p. 139

板８０の寸法と同一である。前記舌板１２の上表面が係合面１２０であり、下表面が当接面１２１である。係合面１２０には、複数の第１端子溝１２０１が形成される。当接面１２１には、複数の第２端子溝１２１１と、複数の凹溝１２１２とが形成される。舌板１２の前端には、係合面１２０と当接面１２１とを貫通する凹部１２２が形成される。絶縁性本体１において、プラグコネクタ８或いは第２プラグ７と相対する面が相手面１０３であり、回路基板１０１と係合する面が実装面１０２である。

【０００９】

遮蔽部材３は、前蓋体３１と、前蓋体３１と係合する後蓋体３２とを含む。前蓋体３１は、頂面３１１と、底面３１２と、一対の側面３１３と、頂面３１１と底面３１２と側面３１３とによって包囲される収納穴３１０とを有する。前蓋体３１の頂面３１１と底面３１２と側面３１３には、複数の弾力片３１５と、係合孔３１８とが設けられる。一対の側面３１３には、側面３１３から下向きに延在する半田接続脚３１６が設けられる。後蓋体３２には、複数の係合片３２１と凸点３２２が設けられる。

【００１０】

導電端子２は、第１端子グループ２１及び第２端子グループ２２を具備する。第１端子グループ２１は、パワー端子２１７と、一対の第１差分信号端子（即ち、正、負信号端子）２１８と、第１接地端子２１９とを具備する。各第１端子グループ２１の中の端子は、第１固持部２１１と、第１固持部２１１の前端に設けられる弾性的な第１接触部２１０と、第１半田接続部２１２とを有する。第２端子グループ２２は、第２対の差分信号端子２２５と、第３対の差分信号端子２２７と、該第２、第３対の差分信号端子２２５，２２７の間に配置される第２接地端子２２６とを有する。第２端子グループ２２の中の端子は、第２固持部２２１と、第２固持部２２１の前端に設けられる平板状な第２接触部２２０と、第２接触部２２０と固持部２２１との間に設けられる折部２２４と、第２固持部２２１の尾端に設けられる第２半田接続部２２２とを備える。

【００１１】

定位部材４には、上下に延在する複数の定位溝４１が形成される。定位部材４の両側には、一対のビーム部４２が設けられる。

【００１２】

該ソケットコネクタ１００を組み合わせる時、第１、第２端子グループ２１，２２は主体部１１の舌板１２に固着される。第１端子グループ２１が舌板１２の第２端子溝１２１１に挿入される。第２端子グループ２２の第２固持部２２１が舌板１２の第１端子溝１２０１に挿入され、第２接触部２２０が凹溝１２１２に嵌合され、折部２２４が凹部１２２に嵌入される。第１端子グループ２１の第１接触部２１０が舌板１２の当接面１２１から突出し、第２端子グループ２２の第２接触部２２０が、当接面１２１に到着しない。第１、第２接触部２１０，２２０は、舌板１２の長さによって二列に配置される。第１接触部２１０には、プラグコネクタ８或いは第２プラグ７と相対する第１接触点２１３が設けられる。第２接触部２２０には、プラグコネクタ８或いは第２プラグ７と相対する第２接触点２２３が設けられる。第１、第２接触点２１３，２２３が舌板１２の当接面１２１に配置される。第１、第２端子グループ２１，２２の第１、第２半田接続部２１２，２２２が、それぞれ阻止板１１４の両側に位置して絶縁性本体１から延出する。第２端子グループ２２は、舌板１２の幅に沿って配置される。第２端子グループ２２が第１端子グループ２１と接触しない。前蓋体３１は絶縁性本体１を覆う。前蓋体３１の側面の弾力片３１５が絶縁性本体１のスロット１１７に当接する。後蓋体３２が前蓋体３１と係合する。後蓋体３２の係合片３２１、凸点３２２とは、前蓋体３１の係合孔３１８と係合する。

【００１３】

図７Ａ～図８に示すように、本発明の第２実施状態におけるソケットコネクタ２００に関して、第１実施状態におけるソケットコネクタ１００と異なる特徴は、舌板１２と前蓋体３１の頂面３１１の間の距離は、舌板１２と前蓋体３１の底面３１２の間の距離より大きいことである。又、舌板１２の係合面１２０と当接面１２１とは、それぞれ舌板１２の下表面と上表面である。前記第２端子溝１２１１と凹溝１２１２とが舌板１２の上表面（

Samsung, EX1019, p. 140

即ち、当接面１２１）に形成され、第１端子溝１２０１が舌板１２の下表面（即ち、係合面１２０）に形成される。第１接触部２１０と第２接触部２２０とは舌板１２の上方に配置される。

【００１４】

図９Ａ～図１０に示すように、本発明の第３実施状態におけるソケットコネクタ３００に関して、第１実施状態におけるソケットコネクタ１００と異なる特徴は、該ソケットコネクタ３００が開口１０４が形成される回路基板１０１に装着されることである。前蓋体３１の前端に設けられる半田接続脚３１６が前蓋体３１の側面３１３の中間部から外へ水平方向に沿って折り曲げられて形成される。ソケットコネクタ３００の実装面１０２が前端に設けられる半田接続脚３１６の下表面であり、前蓋体３１の底面３１２の上に配置される。前蓋体３１の底面３１２及び部分の側面３１３とは、回路基板１０１の開口１０４に収納される。これにより、ソケットコネクタ３００と回路基板１０１との高度が減少される。

【００１５】

主体部１１の下端が前向きに延在して、回路基板１０１の開口１０４を支持するための支持部１１５が形成される。該支持部１１５が舌板１２と略平行である。前蓋体３１の底面３１２が後向きに延在して係合部３１９が形成される。係合部３１９が主体部１１に固定される。支持部１１５が前蓋体３１の底面３１２の後部を支持する。

【００１６】

図１１Ａ～図１５に示すように、本発明の第４実施状態におけるソケットコネクタ４００に関して、第１実施状態におけるソケットコネクタ１００と異なる特徴は、ソケットコネクタ４００の舌板１２が実装面１０２と直交することである。本実施例において、舌板１２の当接面１２１と係合面１２０とは舌板１２の左側面と右側面である。第１接触部２１０が上下に沿って一列に配置される。第２接触部２２０が上下に沿って他列に配置される。第１端子グループ２１と第２端子グループ２２との間には固持板５が配置される。絶縁性本体１の後部には、固持板５及び第１、第２端子グループ２１，２２を収納するための凹所１１６が形成される。固持板５の両側には、細長い突出部５１が設けられる。第１、第２半田接続部２１２，２２２が隣接する突出部５１の間に固持される。第１端子グループ２１の第１半田接続部２１２と第１固持部２１１との間には、前向きに延在して横に延在する折曲部２１４が設けられる。該折曲部２１４の後端が突出部５１の頂端に当接し、折曲部２１４が固持部５の前表面に部分に付着される。

【００１７】

図１６Ａ～図１８に示すように、本発明の第５実施状態におけるソケットコネクタ５００に関して、第１実施状態におけるソケットコネクタ１００と異なる特徴は、収納穴３１０の開口が上向きに開放し、舌板１２が実装面１０２と直交することである。第１、第２接触部２１０，２２０は舌板１２の右側に配置される。第１固持部２１１と第１半田接続部２１２とは略平行である。第２固持部２２１と第２半田接続部２２２とは上下に沿って対応する。

【００１８】

図１９Ａ～図２０に示すように、本発明の第６実施状態におけるソケットコネクタ６００に関して、第１実施状態におけるソケットコネクタ１００と異なる特徴は、収納穴３１０の開口が上向きに開放し、舌板１２が実装面１０２と直交することである。第１、第２接触部２１０，２２０は舌板１２の右側に配置される。第１固持部２１１と第１半田接続部２１２とは略平行である。第２固持部２２１と第２半田接続部２２２とは傾斜するように延在する。実装面１０２と相手面１０３は、直交せず、平行でもない。実装面１０２が相手面１０３に対して傾斜する。

【００１９】

従来のＵＳＢ標準２．０のソケットコネクタには、両対の差分信号端子２２５，２２７及び接地端子２２６が増加される。データを転送する速度が高められる。

【００２０】

Samsung, EX1019, p. 141

以上、本発明について好ましい実施形態を参照して詳細に説明したが、実施形態はあくまでも例示的なものであり、これらに限定されるものではない。また上述の説明は、本発明に基づき成し得る細部の修正或は変更などは、いずれも本発明の技術的範囲に属するものである。

【図面の簡単な説明】

【００２１】

【図１Ａ】本発明の第１実施状態におけるソケットコネクタが回路基板に取付けられる組立図である。

【図１Ｂ】図１Ａに示されるソケットコネクタの斜視図である。

【図２】図１Ｂに示すソケットコネクタの部分の分解斜視図である。

【図３】図２に示すソケットコネクタの分解斜視図である。

【図４】図２に示すソケットコネクタの別の分解斜視図である。

【図５】図３に示すソケットコネクタの別の分解斜視図である。

【図６】図５に示すソケットコネクタの別の分解斜視図である。

【図７Ａ】本発明の第２実施状態におけるソケットコネクタが回路基板に取付けられる組立図である。

【図７Ｂ】図７Ａに示すソケットコネクタの斜視図である。

【図８】図７Ｂに示すソケットコネクタの分解斜視図である。

【図９Ａ】本発明の第３実施状態におけるソケットコネクタが回路基板に取付けられる組立図である。

【図９Ｂ】図９Ａに示すソケットコネクタの斜視図である。

【図１０】図９Ａに示すソケットコネクタの分解斜視図である。

【図１１Ａ】本発明の第４実施状態におけるソケットコネクタが回路基板に取付けられる組立図である。

【図１１Ｂ】図１１Ａに示すソケットコネクタを回路基板から分離させた部分的な分解斜視図である。

【図１２】図１１Ｂに示すソケットコネクタの部分の分解斜視図である。

【図１３】図１２に示すソケットコネクタの別の分解斜視図である。

【図１４】図１３の別の分解斜視図である。

【図１５】図１１Ｂに示すソケットコネクタの分解斜視図である。

【図１６Ａ】本発明の第５実施状態におけるソケットコネクタが回路基板に実装される組立図である。

【図１６Ｂ】図１６Ａの別の平面図である。

【図１７】図１６Ａに示すソケットコネクタの部分の分解斜視図である。

【図１８】図１６Ａに示すソケットコネクタの分解斜視図である。

【図１９Ａ】本発明の第６実施状態におけるソケットコネクタが回路基板に実装される組立図である。

【図１９Ｂ】図１９Ａの別の平面図である。

【図２０】図１９Ａに示すソケットコネクタの分解斜視図である。

【図２１】本発明のソケットコネクタと相対する第２プラグの斜視図である。

【図２２】本発明のソケットコネクタと相対するＵＳＢ２．０標準プラグの斜視図である。

【符号の説明】

【００２２】

１　絶縁性本体

１００～６００　ソケットコネクタ

１０１　回路基板

１０２　実装面

１０３　相手面

１０４　開口

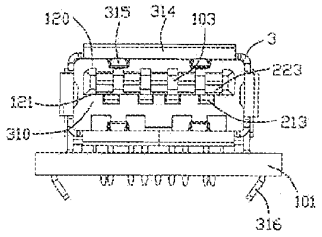
Samsung, EX1019, p. 142

１１　主体部
１１１　固定溝
１１４　阻止板
１１５　支持部
１１６　凹所
１１７　スロット
１２　舌板
１２０　係合面
１２０１　第１端子溝
１２１　当接面
１２１１　第２端子溝
１２１２　凹溝
１２２　凹部
１３　足部
２　導電端子
２１　第１端子グループ
２１０　第１接触部
２１１　第１固持部
２１２　第１半田接続部
２１３　第１接触点
２１４，２１６　折曲部
２１７　パワー端子
２１８　第１差分信号端子
２１９　第１接地端子
２２　第２端子グループ
２２０　第２接触部
２２１　第２固持部
２２２　第２半田接続部
２２３　第２接触点
２２４　折部
２２５　第２対差分信号端子
２２６　第２接地端了
２２７　第３対差分信号端子
３　遮蔽部材
３１　前蓋体
３１０　収納穴
３１１　頂面
３１２　底面
３１３　側面
３１４　導入片
３１５　弾力片
３１６　半田接続脚
３１８　係合孔
３１９　係合部
３２　後蓋体
３２１　係合片
３２２　凸点
４　定位部材
４１　定位溝
４２　ビーム部

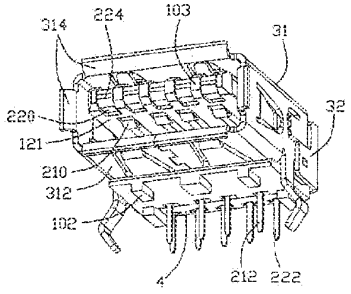
Samsung, EX1019, p. 143

５　固持板
５１　突出部
７　第２プラグ
７０，８０　舌片
７１，８１　接点
７２　付加接点
８　プラグコネクタ

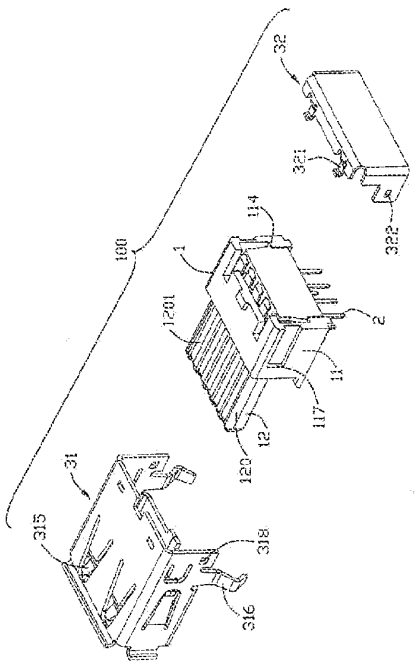
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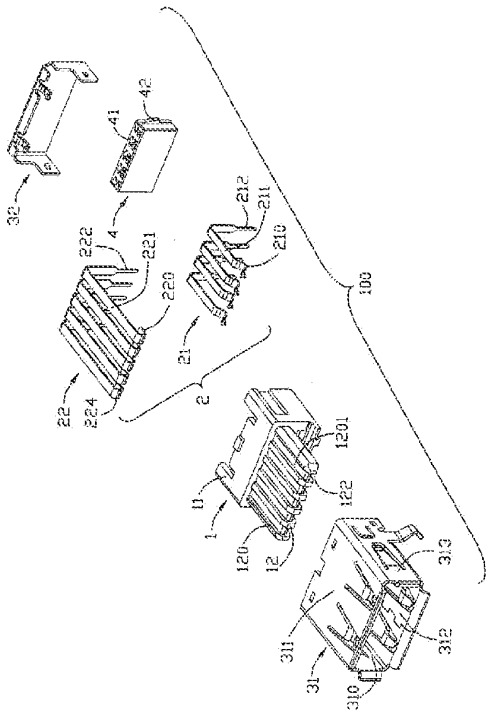


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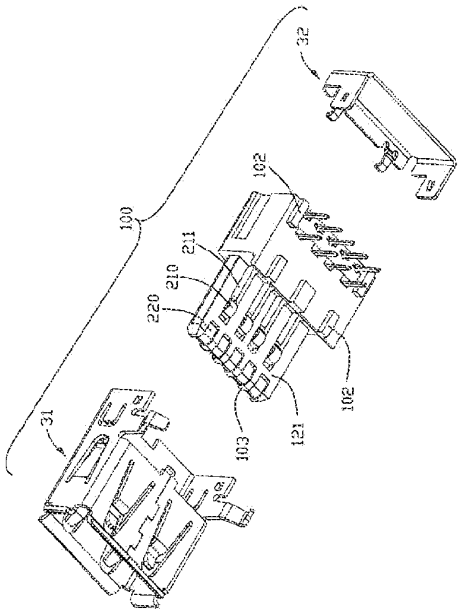


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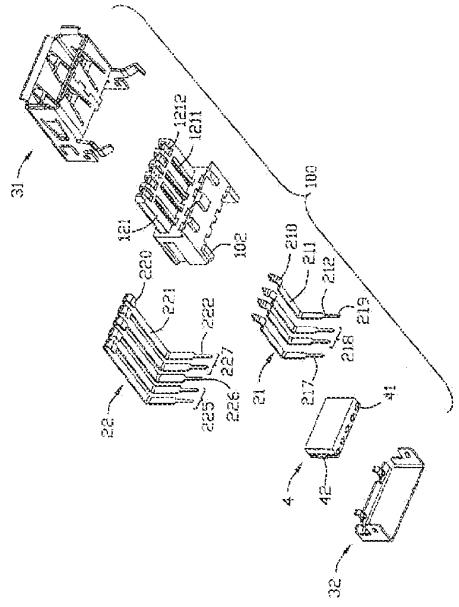
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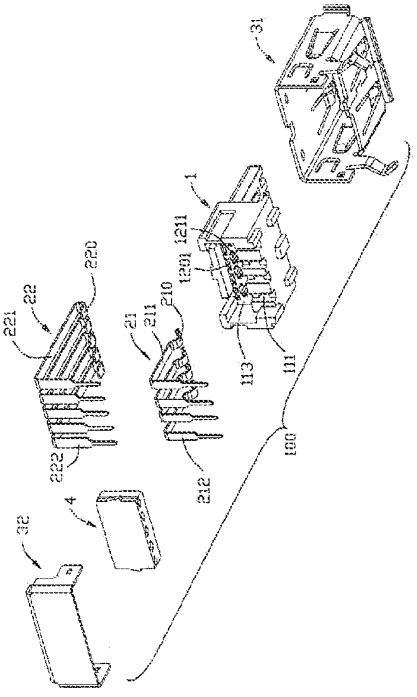
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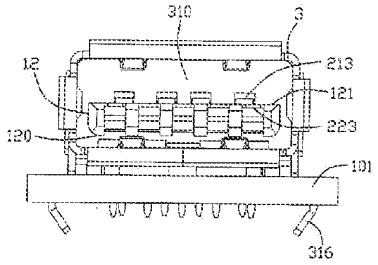


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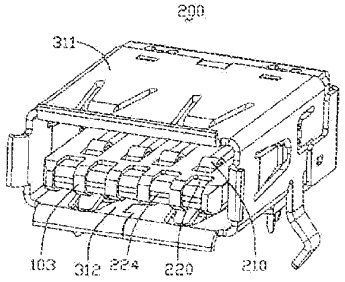


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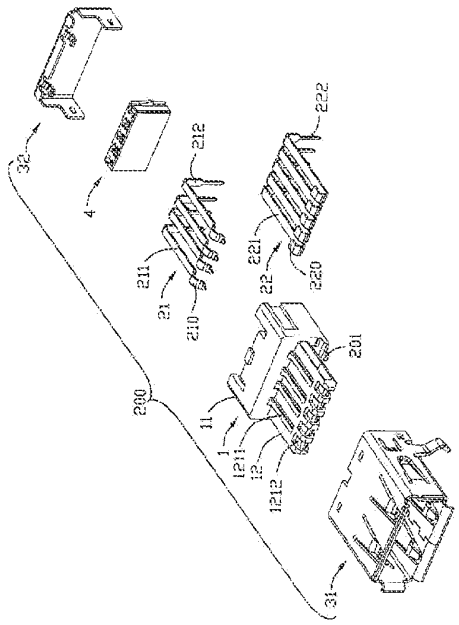
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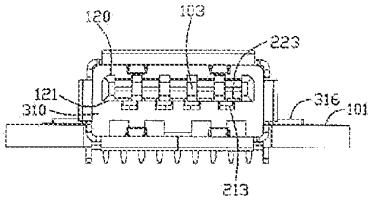
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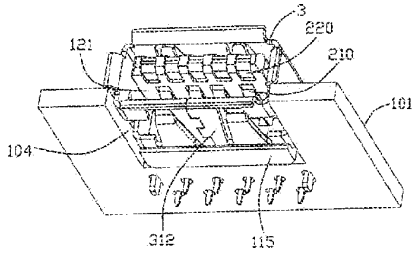
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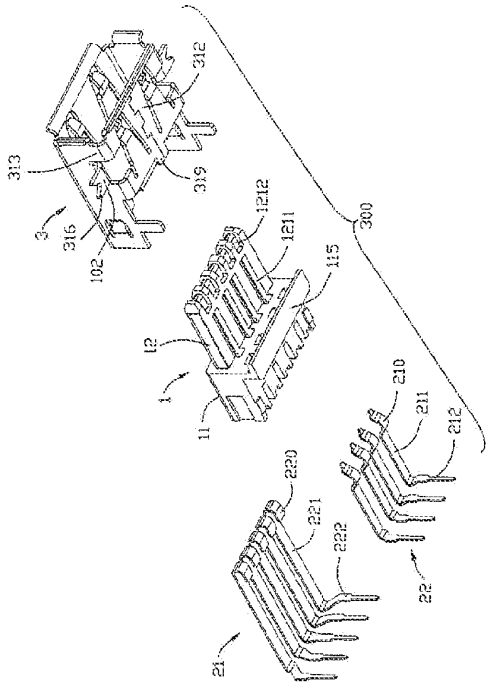
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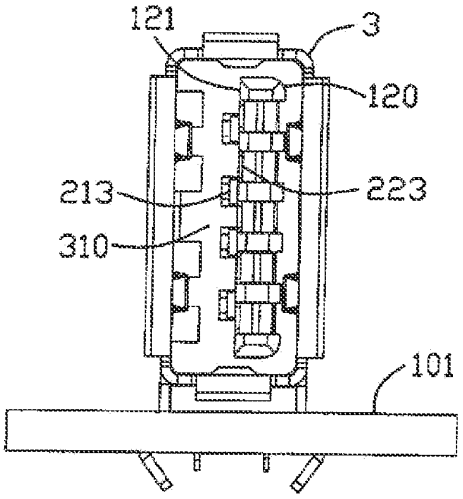


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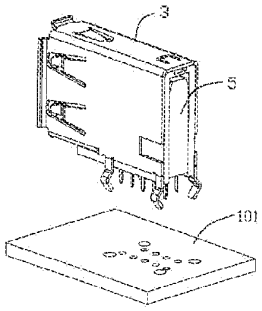


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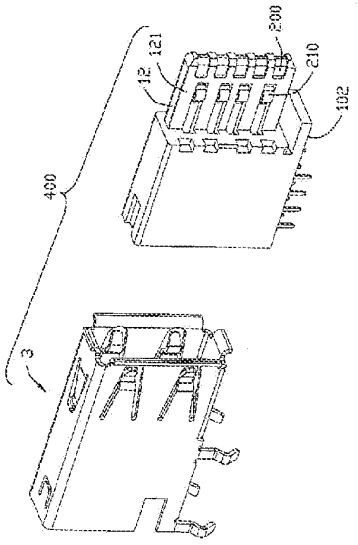
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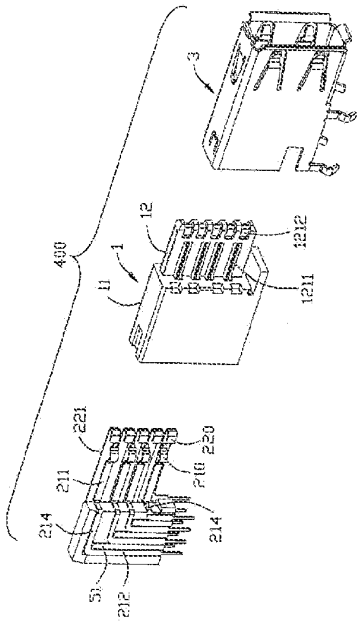
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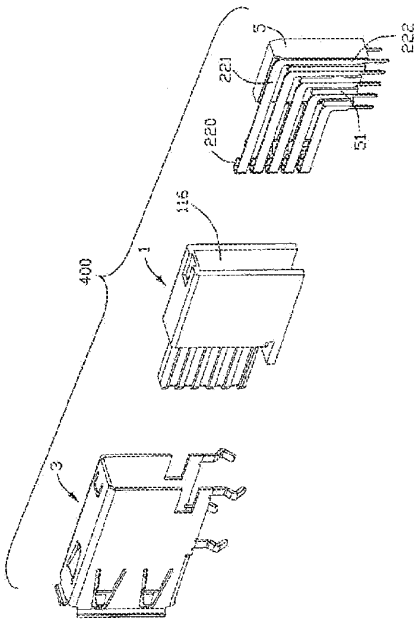
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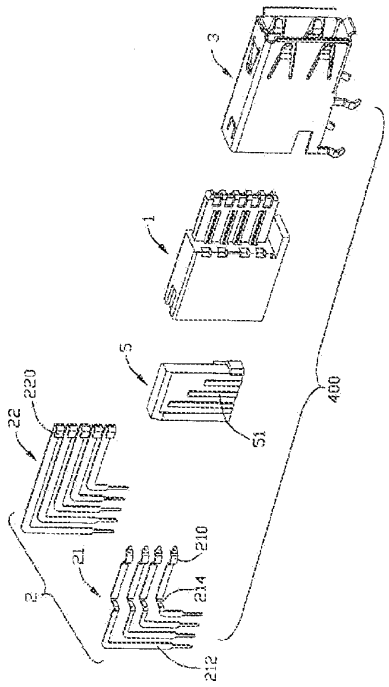
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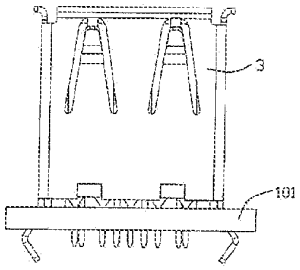
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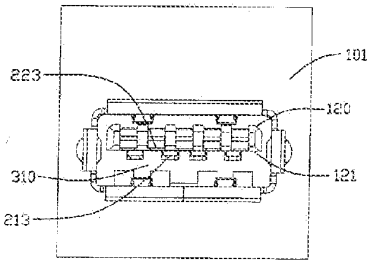
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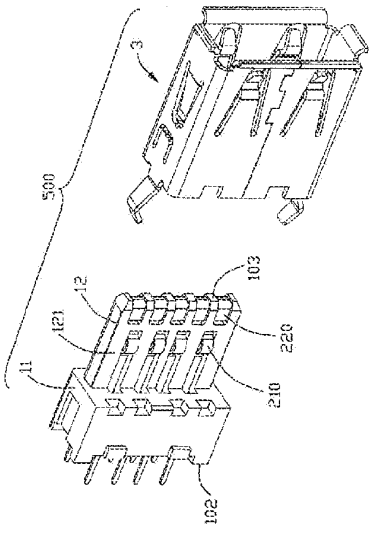
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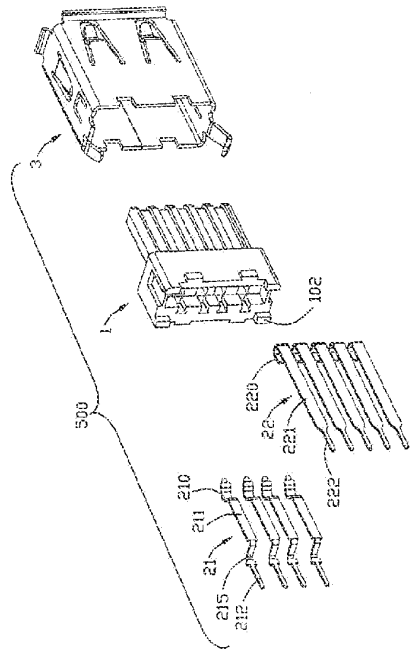
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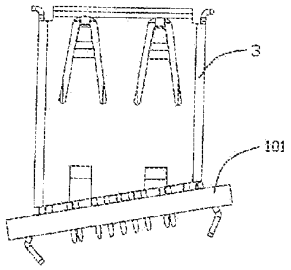
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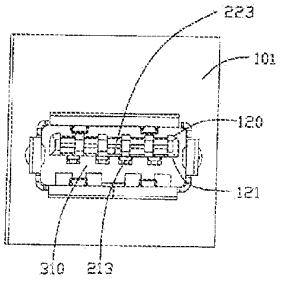
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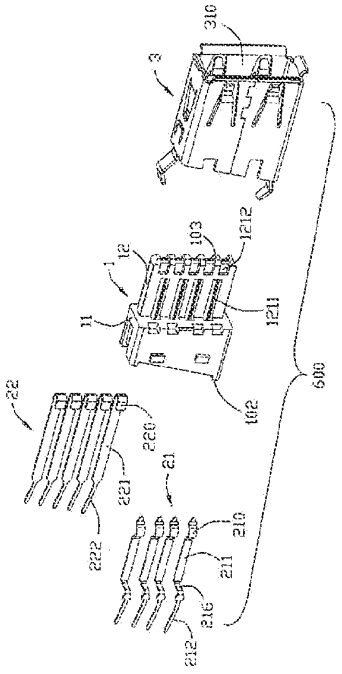
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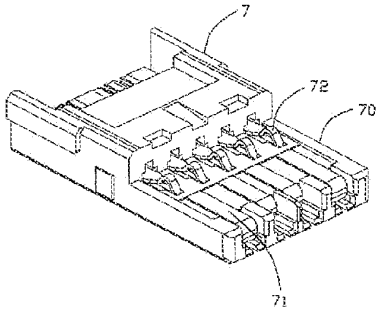
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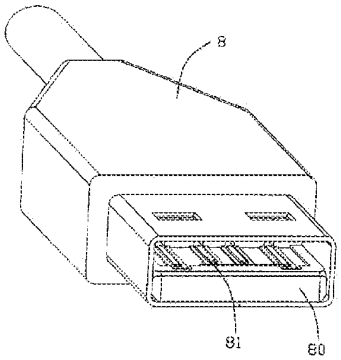
【図２０】



【図２１】



【図２２】



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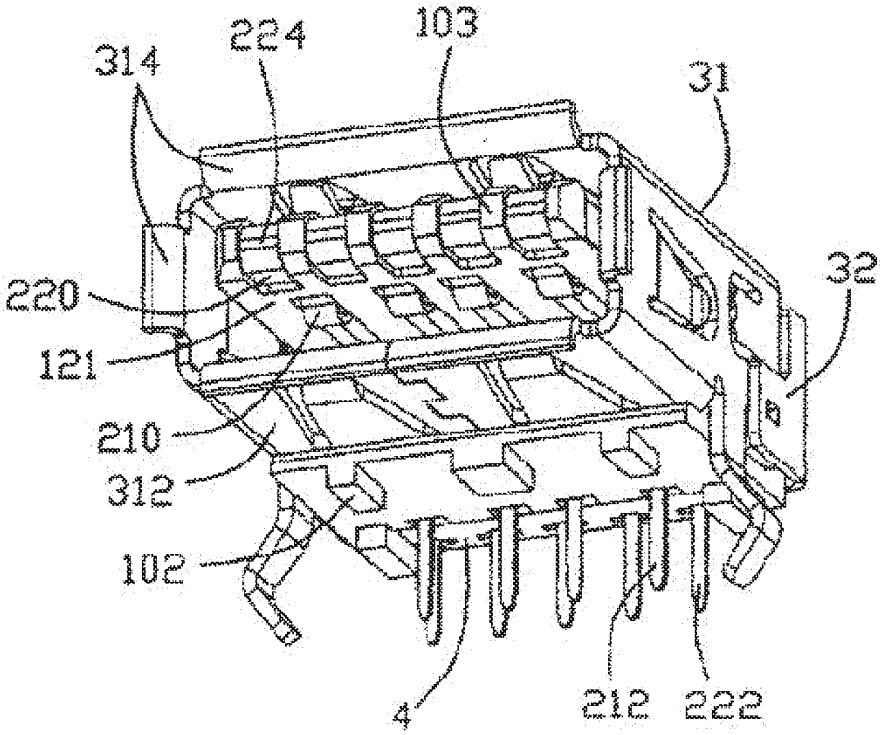
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(57) [Summary]

PROBLEM TO BE SOLVED: To provide a socket connector for increasing the speed to transmit a signal.
SOLUTION: The socket connector is an insulator main body, a first and second terminal groups and a shielding member. The insulator main body includes a mating face and a mounting face and has a main body part and a tongue plate so as to extend forward from The first terminal group includes a first fixing part to be fixed in the second terminal groove of the insulating main body, a first contact part provided at the front. The second terminal group includes a second contact part to be fixed in the recessed groove of the insulator main body, a second fixing part connected to the second. contact part,The first and second contact parts are arranged on the and a second solder connecting part extending from the insulator main body. The shielding member has a top face, a bottom face, a pair of side faces and a storing hole for storing the tongue plate. same side as the tongue plate, positioned at various altitudes.



[Patent Claims]
[Claim 1]
An insulating body including a mating surface and a mounting surface and having a main body portion and a tongue plate extending forward from the main body portion and forming a plurality of 2 terminal grooves and a recessed groove ;
A 2 terminal group including a 1 fixing portion fixed to a 1 terminal groove of the insulating body, a 1 contact portion provided at a front end of the 1 fixing portion, and a 1 solder connecting portion extending from the insulating body ;
A 2 terminal group including a 2 contact portion fixed to a recessed groove of the insulating body, a 2 fixing portion connected to the 2 contact portion, and a 2 solder connecting portion extending from the insulating body ;
A shielding member having a top surface, a bottom surface, a pair of side surfaces and a receiving hole for storing the tongue plate ;
The socket connector according to claim 1, wherein said first and 2 contact portions are arranged on the same side of the tongue plate and are positioned at different heights.
[Claim 2]
A socket connector according to claim 1, wherein said 1 contact portion is formed in an elastic structure and said 2 contact portion is formed in a planar shape.
[Claim 3]
The socket connector of claim 1, wherein a 2 contact portion is arranged in a row along a length of the tongue plate, and a 1 contact portion is arranged in a row after the 2 contact portion.
[Claim 4]
The tongue plate includes an abutting surface, an engaging surface opposed to the abutting surface, the recessed groove and the 2 terminal groove recessed from the abutting surface, a 2 terminal groove for storing the 1 fixing part is formed on an engaging surface of the tongue plate, the 1 and 2 fixing parts are disposed on both sides of the tongue plate, a folded part is provided between the 2 fixing part and the 2 contact part, and a front end of the tongue plate is provided. The socket connector according to claim 1, wherein a recess for accommodating the folded portion is formed through the contact surface and the engaging surface.
[Claim 5]
The socket connector according to claim 4, wherein the 1 contact portion is provided with a 1 contact point facing the mating connector, and the 2 contact portion is provided with a 2 contact point opposed to the mating connector, and the 1 and 2 contact points are disposed on the contact surface of the tongue plate.
[Claim 6]
The dimensions of the 2 tongue plate are substantially identical to the dimensions of the corresponding tongue plate of a standard USB 2.0 a type socket connector. The socket connector of claim 1, wherein the 1 terminal group includes a power terminal and a 1 pair of differential signal terminals and a 1 ground terminal, and wherein the 2 terminal group includes a 2 pair of differential signal terminals disposed in parallel, a 2 ground terminal, and a 3 pair of differential signal terminals.
[Claim 7]
The socket connector according to claim 1, wherein the mounting surface is positioned above a bottom surface of the shielding member.
[Claim 8]
The socket connector according to claim 1, wherein a fixing plate for localizing a conductive terminal is provided on the insulating body, a recess for accommodating a fixing plate is formed at a rear end of the main body, and the first and 2 terminal groups are disposed on both sides of the fixing plate, respectively. 1.
[Claim 9]
The socket connector of claim 1, wherein the housing hole of the insulating body includes an opening opening upward, and the tongue plate is perpendicular to the mounting surface.
[Claim 10]
The socket connector of claim 1, wherein said mating surface is inclined or parallel or orthogonal to said mounting surface.

[Detailed description of the invention]
[Technical field]
[0001]

This invention relates to electrical connectors and, more particularly, to a connector connector consistent with the USB (Universal Serial Bus) standard.
[Background of the Invention]
[0002]
A prior art USB connector includes a plug and a socket. The plug has an **** and an insulating body covering the ****. The insulating body includes a tongue, 4 plug terminals mounted on the tongue, and a housing covering the tongue and the plug terminal. A receiving hole is formed between the upper surface of the tongue and the housing for accommodating the tongue of the socket. The plug terminal includes a power terminal, a negative signal terminal, a positive signal terminal, and a ground terminal. The socket includes a tongue, 4 socket terminals mounted on the lower surface of the tongue, a housing, and the socket terminal includes a power terminal, a negative signal terminal, and a positive signal terminal and a ground terminal. A receiving hole is formed between the lower surface of the tongue and the housing for accommodating the tongue of the plug. When the plug is in connection with the socket, the socket terminal is electrically connected to the plug terminal.
[Disclosure of invention]
[Problem to be solved by the invention]
[0003]
To increase the rate at which the signal is transferred, it is necessary to increase the number of terminals in the normal terminal. At the same time, it is desired not to increase the space occupied by conventional USB connectors.
[0004]
It is therefore an object of the present invention to provide a socket connector which increases the speed at which a signal is transferred.
[Means for solving the problem]
[0005]
In order to achieve the above object, a socket connector according to the present invention includes an insulating body, a 1 terminal group, a 2 terminal group, and a shielding member. The insulating body includes a mating surface and a mounting surface, and has a main body portion and a tongue plate extending forwardly from the main body portion and forming a plurality of 2 terminal grooves and a recessed groove. The 1 terminal group includes a 2 fixing portion fixed to the 1 terminal groove of the insulating body, a 1 contact portion provided at a front end of the 1 fixing portion, and a 1 solder connecting portion extending from the insulating body. The 2 terminal group includes a 2 contact portion fixed to a recessed groove of the insulating body, a 2 fixed portion connected to the 2 contact portion, and a 2 solder connecting portion extending from the insulating body. The shielding member has a top surface, a bottom surface, a pair of side surfaces, and a receiving hole for storing the tongue plate. The 1 2 contact portions are arranged on the same side of the tongue plate and are located at different elevations.
[Effect of the Invention]
[0006]
In comparison with the prior art, the present invention has the following advantages. In the socket connector of the present invention, a plurality of differential signal terminals are increased. This increases the rate at which the signal is transferred.
[Best mode for carrying out the invention]
[0007]
Referring to FIGS. 1 a to 6 and FIGS. 21 to 22, the socket connector of the present invention is a USB socket connector 100 which is connected to a USB 2.0 standard plug connector 8 or a 2 plug 7. A tongue 80 of a connector 8 of a USB 2.0 standard plug is provided with 4 planar contacts 81. The dimension of the tongue 70 of the 2 plug 7 is substantially the same as the dimension of the tongue plate 80 of the plug 8 of type A of the USB 2.0 standard. The tongue 70 is provided with 4 plate-shaped contacts 71 and 5 additional contacts 72. The socket connector 100 includes an insulating body 1, a plurality of conductive terminals 2 inserted into the insulating body 1, a positioning member 4 for localizing the conductive terminal 2, and a shielding member 3 for covering the insulating body 1.

[0008]
The insulating body 1 includes a main body portion 11 and a tongue plate 12 protruding from the main body portion 11. A plurality of slots 117 are formed on a side surface of the main body 11. A blocking plate 114 is provided on a rear surface of the main body 11. A tongue plate 12 has a tab 2.0 and a connector 8 of a USB standard plug type A.

It is identical to the dimensions of the plate 80. An upper surface of the tongue plate 12 is an engaging surface 120, and a lower surface is an abutting surface 121. A plurality of 1 terminal grooves 1201 are formed in the engaging surface 120. A plurality of 2 terminal grooves 1211 and a plurality of recessed grooves 1212 are formed on the contact surface 121. At the front end of the tongue plate 12, a recess 122 is formed which penetrates the engaging surface 120 and the abutting surface 121. In the insulating body 1, a surface facing the plug connector 8 or the 2 plug 7 is a mating surface 103, and a surface engaging the circuit board 101 is a mounting surface 102.
[0009]
The shielding member 3 includes a front lid body 31 and a rear lid body 32 engaged with the front lid body 31. The front lid 31 has a top surface 311, a bottom surface 312, a pair of side surfaces 313, a storage hole 310 surrounded by a top surface 311, a bottom surface 312, and a side surface 313. A plurality of elastic pieces 315, an engaging hole 318 are provided on the top surface 311 and the bottom surface 312 of the front lid 31 and on the side surface 313. A pair of side surfaces 313 are provided with solder connecting legs 316 extending downwardly from the side surfaces 313. A plurality of engaging pieces 321 and a projecting point 322 are provided on the rear lid body 32.
[0010]
The conductive terminal 2 includes a 1 terminal group 21 and a 2 terminal group 22. The 1 terminal group 21 includes a power terminal 217, a pair of 1 differential signal terminals (I. e., positive and negative signal terminals) 218, and a 1 ground terminal 219. A terminal of each 1 terminal group 21 includes a 1 fixing portion 211, an elastic 1 contact portion 210 provided at a front end of the 1 fixing portion 211, and a 1 solder connecting portion 212. The 2 terminal group 22 includes a 2 pair of differential signal terminals 225, a 3 pair of differential signal terminals 227, and a 2 ground terminal 226 disposed between the 2 and 3 pair of differential signal terminals 225,227. A terminal in the 2 terminal group 22 includes a 2 fixing portion 221, a 2 contact portion 220 in a flat plate shape provided at a front end of the 2 fixing portion 221, a folding portion 224 provided between the 2 contact portion 220 and the fixing portion 221, and a 2 solder connecting portion 222 provided at a tail end of the 2 fixing portion 221.
[0011]
A plurality of positioning grooves 41 extending vertically are formed in the positioning member 4. A pair of beam portions 42 is provided on both sides of the positioning member 4.
[0012]
When the socket connector 100 is combined, the 1 and 2 terminal groups 21,22 and are fixed to the tongue plate 12 of the main body portion 11. A 1 terminal group 21 is inserted into the 2 terminal groove 1211 of the tongue plate 12. The 2 fixing portion 221 of the 2 terminal group 22 is inserted into the 1 terminal groove 1201 of the tongue plate 12, the 2 contact portion 220 is fitted into the recessed groove 1212, and the folded portion 224 is fitted into the recessed portion 122. A 1 contact portion 210 of the 1 terminal group 21 protrudes from an abutment surface 121 of the tongue plate 12, and a 2 contact portion 220 of the 2 terminal group 22 does not reach the abutment surface 121. The 1 2 contact portions 210,220 are arranged in 2 rows according to the length of the tongue plate 12. The 1 contact portion 210 is provided with a 1 contact point 213 facing the plug connector 8 or the 2 plug 7. The 2 contact portion 220 is provided with a 2 contact point 223 facing the plug connector 8 or the 2 plug 7. A 1 and a 2 contact point 213,223 are arranged on the abutment surface 121 of the tongue plate 12. The 1 2 solder connections 212,222 of the 1 2 terminal group 21,22 are located on opposite sides of the blocking plate 114 and extend from the insulating body 1. The 2 terminal group 22 is arranged along the width of the tongue plate 12. The 2 terminal group 22 does not contact the 1 terminal group 21. The front lid 31 covers the insulating body 1. An elastic piece 315 on the side of the front lid 31 abuts against the slot 117 of the insulating body 1. A rear lid 32 engages with the front lid 31. The engaging piece 321 and the convex point 322 of the rear lid 32 engage with the engaging hole 318 of the front lid 31.
[0013]
As shown in FIGS. 7 a to 8, with respect to the socket connector 200 in the 2 embodiment of the

present invention, a different feature from the socket connector 100 in the 1 embodiment is that the distance between the tongue plate 12 and the top surface 311 of the front lid body 31 is larger than the distance between the tongue plate 12 and the bottom surface 312 of the front lid body 31. Further, the engaging surface 120 and the abutting surface 121 of the tongue plate 12 are the lower surface and the upper surface of the tongue plate 12, respectively. The 2 terminal groove 1211 and the recessed groove 1212 are formed on an upper surface of the tongue plate 12.

That is, a 1 terminal groove 1201 is formed on the lower surface of the tongue plate 12 (I. e., the engaging surface 120) on the abutment surface 121. The 1 contact portion 210 and the 2 contact portion 220 are disposed above the tongue plate 12.

[0014]

As shown in FIGS. 9 a to 10, with respect to the socket connector 300 in the 3 embodiment of the present invention, a feature different from the socket connector 100 in the 1 embodiment is that the socket connector 300 is mounted on the circuit board 101 in which the opening 104 is formed. A solder connecting leg 316 provided at a front end of the front lid body 31 is formed by being bent from an intermediate part of a side surface 313 of the front lid body 31 along a horizontal direction. A mounting surface 102 of the socket connector 300 is the lower surface of the solder connection leg 316 provided at the front end and is disposed on the bottom surface 312 of the front lid 31. The bottom surface 312 of the front lid 31 and the side surface 313 of the portion are housed in an opening 104 of the circuit board 101. This reduces the height of the socket connector 300 and the circuit board 101.

[0015]

A lower end of the main body portion 11 extends forward to form a support portion 115 for supporting the opening 104 of the circuit board 101. The support 115 is substantially parallel to the tongue plate 12. A bottom surface 312 of the front lid 31 extends backward to form an engaging portion 319. The engaging portion 319 is fixed to the main body portion 11. A support 115 supports the rear of the bottom surface 312 of the front lid 31.

[0016]

As shown in FIG. 11 a to FIG. 15, with respect to the socket connector 400 in the 4 embodiment of the present invention, a characteristic different from the socket connector 100 in the 1 embodiment is that the tongue plate 12 of the socket connector 400 is perpendicular to the mounting surface 102. In this embodiment, the abutment surface 121 and the engagement surface 120 of the tongue plate 12 are the left side and the right side of the tongue plate 12. 1 contact portions 210 are arranged in a row along the vertical direction. The 2 contact portion 220 is arranged in the other row along the vertical direction. A fixed plate 5 is arranged between the 1 terminal group 21 and the 2 terminal group 22. At a rear portion of the insulating body 1, a recess 116 for accommodating the fixing plate 5 and the 1 and 2 terminal groups 21,22 and is formed. Elongated projections 51 are provided on both sides of the securing plate 5. A 1 and 2 solder connection 212,222 is secured between adjacent projections 51. Between the 1 solder connecting portion 212 of the 1 terminal group 21 and the 1 fixing portion 211, a bent portion 214 extending in the forward direction and extending laterally is provided. A rear end of the bent portion 214 abuts on a top end of the protruding portion 51, and a bent portion 214 is attached to a portion of the front surface of the fixed holding portion 5.

[0017]

As shown in FIG. 16 a to FIG. 18, with respect to the socket connector 500 in the 5 embodiment of the present invention, a different characteristic from the socket connector 100 in the 1 embodiment is that the opening of the housing hole 310 is open upward and the tongue plate 12 is perpendicular to the mounting surface 102. The 1 and 2 contact portions 210,220 and are arranged on the right side of the tongue plate 12. The 1 fixing portion 211 and the 1 solder connecting portion 212 are substantially parallel. The 2 fixing portion 221 and the 2 solder connecting portion 222 correspond to each other along the vertical direction.

[0018]

As shown in FIG. 19 a to FIG. 20, with respect to the socket connector 600 in the 6 embodiment of the present invention, a different characteristic from the socket connector 100 in the 1 embodiment is that the opening of the housing hole 310 is open upward and the tongue plate 12 is perpendicular to the mounting surface 102. The 1 and 2 contact portions 210,220 and are arranged on the right side of the tongue plate 12. The 1 fixing portion 211 and the 1 solder connecting portion 212 are substantially parallel. The 2 fixing portion 221 and the 2 solder portion 222 extend in an inclined

manner. The mounting surface 102 and the mating surface 103 are not orthogonal and not parallel. The mounting surface 102 is inclined with respect to the mating surface 103.
[0019]
In a conventional USB standard 2.0 socket connector, differential signal terminals 225,227 and ground terminals 226 are increased. The rate at which data is transferred is increased.
[0020]

While the present invention has been described in detail with reference to preferred embodiments thereof, it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention. It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.
[Brief Description of the Drawings]
[0021]
[Fig. 1A]FIG. 1 is an assembled view of a socket connector in a first embodiment of the present invention mounted on a circuit board ;.
[Fig. 1B]FIG. 1 b is a perspective view of the socket connector shown in FIG. 4 a ;.
[Fig. 2]It is an exploded perspective view of the portion of the socket connector shown in Fig.1 B.
[Fig. 3]FIG. 3 is an exploded perspective view of the socket connector shown in FIG. 2 ;.
[Fig. 4]FIG. 4 is another exploded perspective view of the socket connector shown in FIG. 2 ;.
[Fig. 5]FIG. 4 is another exploded perspective view of the socket connector shown in FIG. 3 ;.
[Fig. 6]FIG. 4 is another exploded perspective view of the socket connector shown in FIG. 5 ;.
[Fig. 7A]FIG. 2 is an assembled view of a socket connector in a first embodiment of the present invention mounted on a circuit board ;.
[Fig. 7B]It is a perspective view of the socket connector shown in Fig.7 A.
[Fig. 8]It is an exploded perspective view of the socket connector shown in Fig.7 B.
[Fig. 9A]FIG. 3 is an assembled view of a socket connector in a first embodiment of the present invention mounted on a circuit board ;.
[Fig. 9B]It is a perspective view of the socket connector shown in Fig.9 A.
[Fig. 10]It is an exploded perspective view of the socket connector shown in Fig.9 A.
[Fig. 11A]FIG. 4 is an assembled view of a socket connector in a first embodiment of the present invention mounted on a circuit board ;.
[Fig. 11B]FIG. 11 b is a partial exploded perspective view of the socket connector shown in FIG. 1 a separated from a circuit board ;.
[Fig. 12]It is an exploded perspective view of the portion of the socket connector shown in Fig.11 B.
[Fig. 13]FIG. 4 is another exploded perspective view of the socket connector shown in FIG. 12 ;.
[Fig. 14]FIG. 3 is another exploded perspective view of FIG. 13 ;.
[Fig. 15]It is an exploded perspective view of the socket connector shown in Fig.11 B.
[Fig. 16A]FIG. 5 is an assembled view of a socket connector according to a first embodiment of the present invention mounted on a circuit board ;.
[Fig. 16B]FIG. 16 b is another plan view of FIG. 4 a ;.
[Fig. 17]It is an exploded perspective view of the portion of the socket connector shown in Fig.16 A.
[Fig. 18]It is an exploded perspective view of the socket connector shown in Fig.16 A.
[Fig. 19A]FIG. 6 is an assembled view of a socket connector according to a first embodiment of the present invention mounted on a circuit board ;.
[Fig. 19B]FIG. 19 b is another plan view of FIG. 4 a ;.
[Fig. 20]It is an exploded perspective view of the socket connector shown in Fig.19 A.
[Fig. 21]FIG. 2 is a perspective view of a first plug opposed to a socket connector of the present invention ;.
[Fig. 22]FIG. 2.0 is a perspective view of a USB standard plug opposite to the socket connector of the present invention ;.
[Explanation of letters or numerals]
[0022]
1 insulating body
100-600 connector connector
101 circuit board
102 Component Side

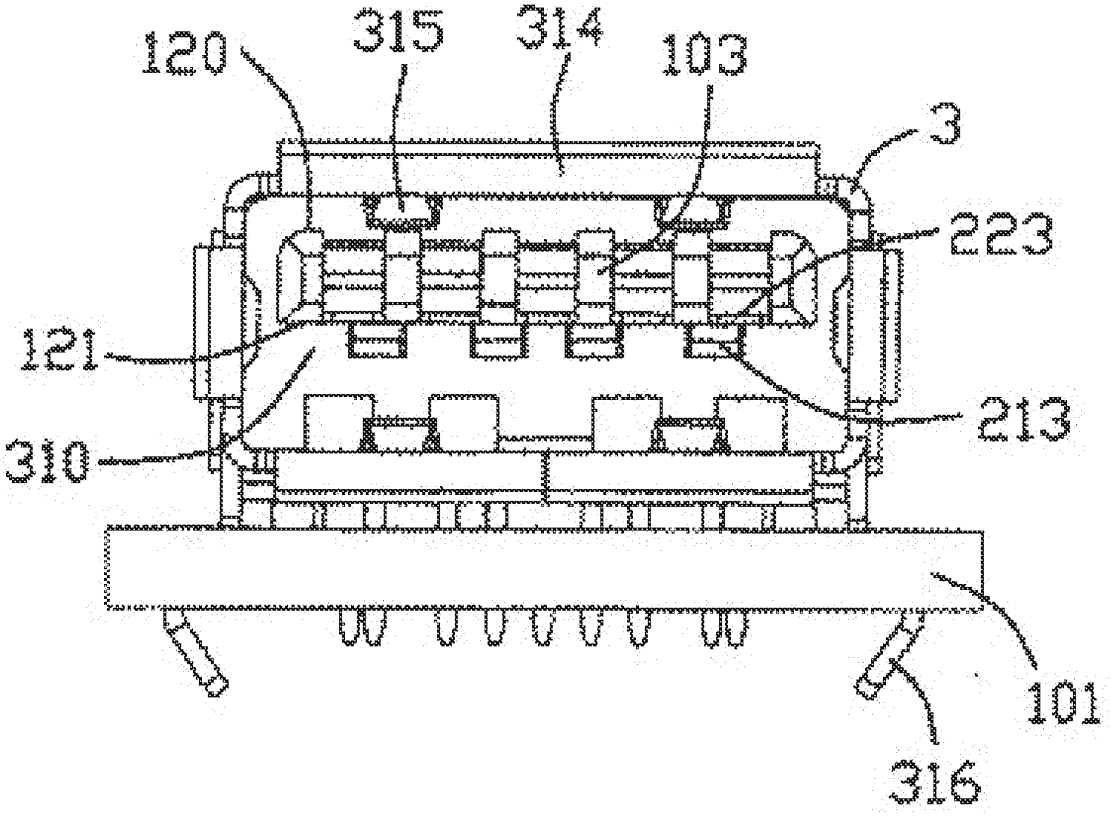
103 Companion Face
104 Opening

11 Main Body Part
111 Mounting Slot
114 Inhibition Board
115 Supporting Part
116 Concave Portion
117 Slot
12 Tongue Board
120 engagement surface
1201 1 terminal groove
121 Contact Surface
1211 2 terminal groove
1212 Concave
122 Concave Part
13 Foot
2 Conducting Terminals
21 1 terminal group
210 1 contact portion
211 1 fixing portion
212 1 solder connection
213 1 contact point
214,216 folding section
217 Power Terminal
218 1 differential signal terminal
219 1 ground terminal
22 2 terminal group
220 2 contact portion
221 2 fixing portion
222 2 solder connection
223 2 contact point
224 Folded Part
225 2 pair difference signal terminal
226 2 ground terminal
227 3 pair difference signal terminal
3 shielding member
31 front lid
310 Accommodation Hole
311 Top Surface
312 Bottom Surface
313 Side Surface
314 Introductory Piece
315 Piece of Elasticity
316 Soldering Connection Leg
318 engagement hole
319 engaging portion
32 rear lid
321 engagement piece
322 Convex Point
4 positioning member
41 Normal Position Slot
42 Beam Part

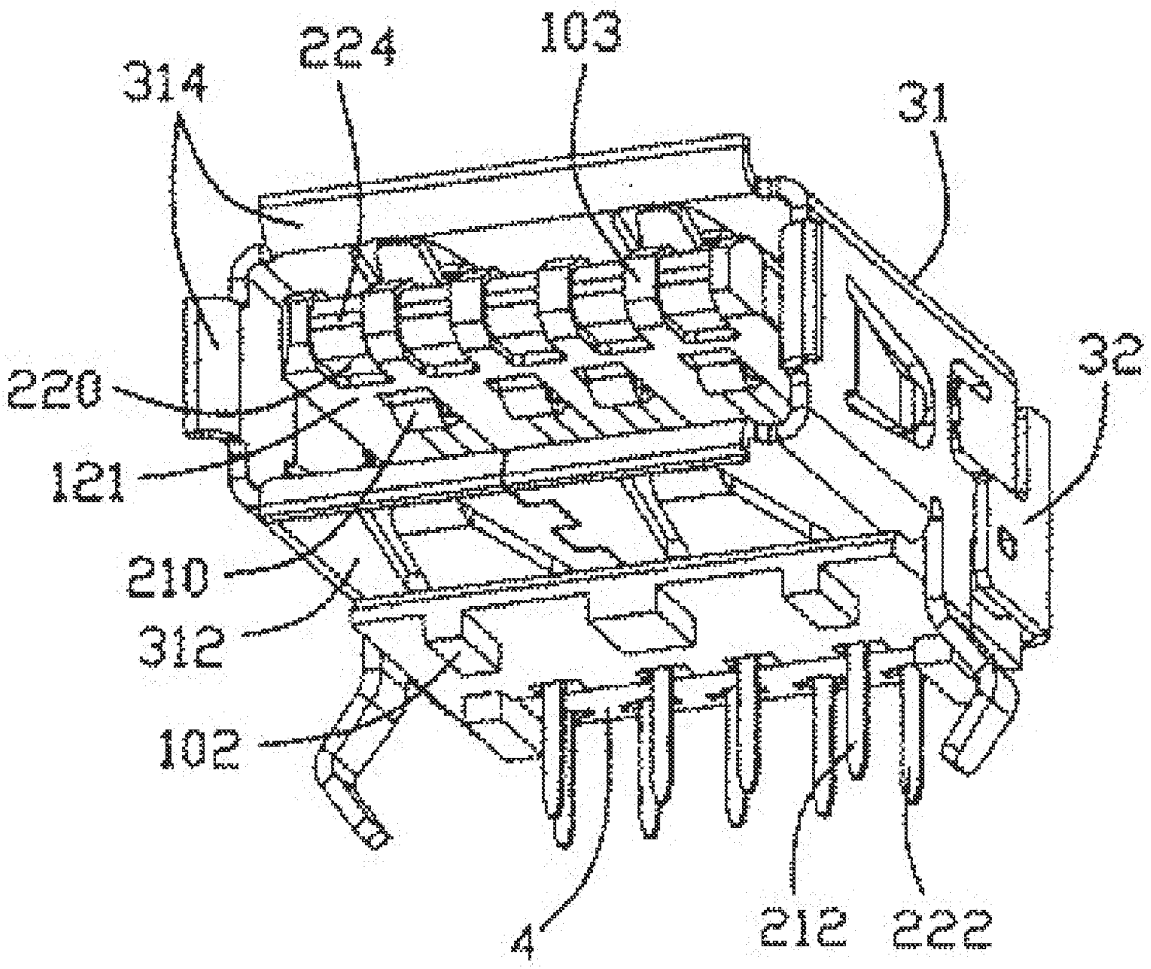
5 Adherence Board
51 projection
7 2 plug

70,80 tongue
71, 81 Contact
72 Addition Contact
8 plug connector

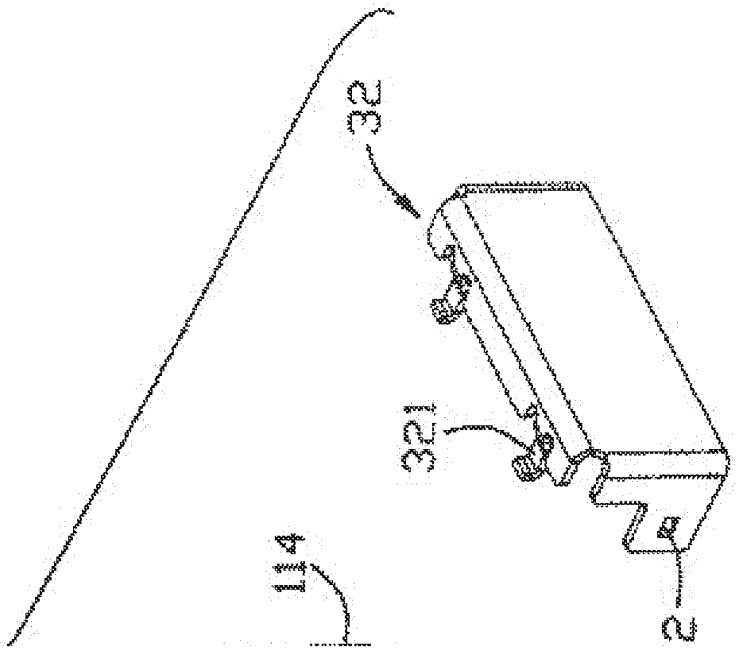
[FIG.1A]

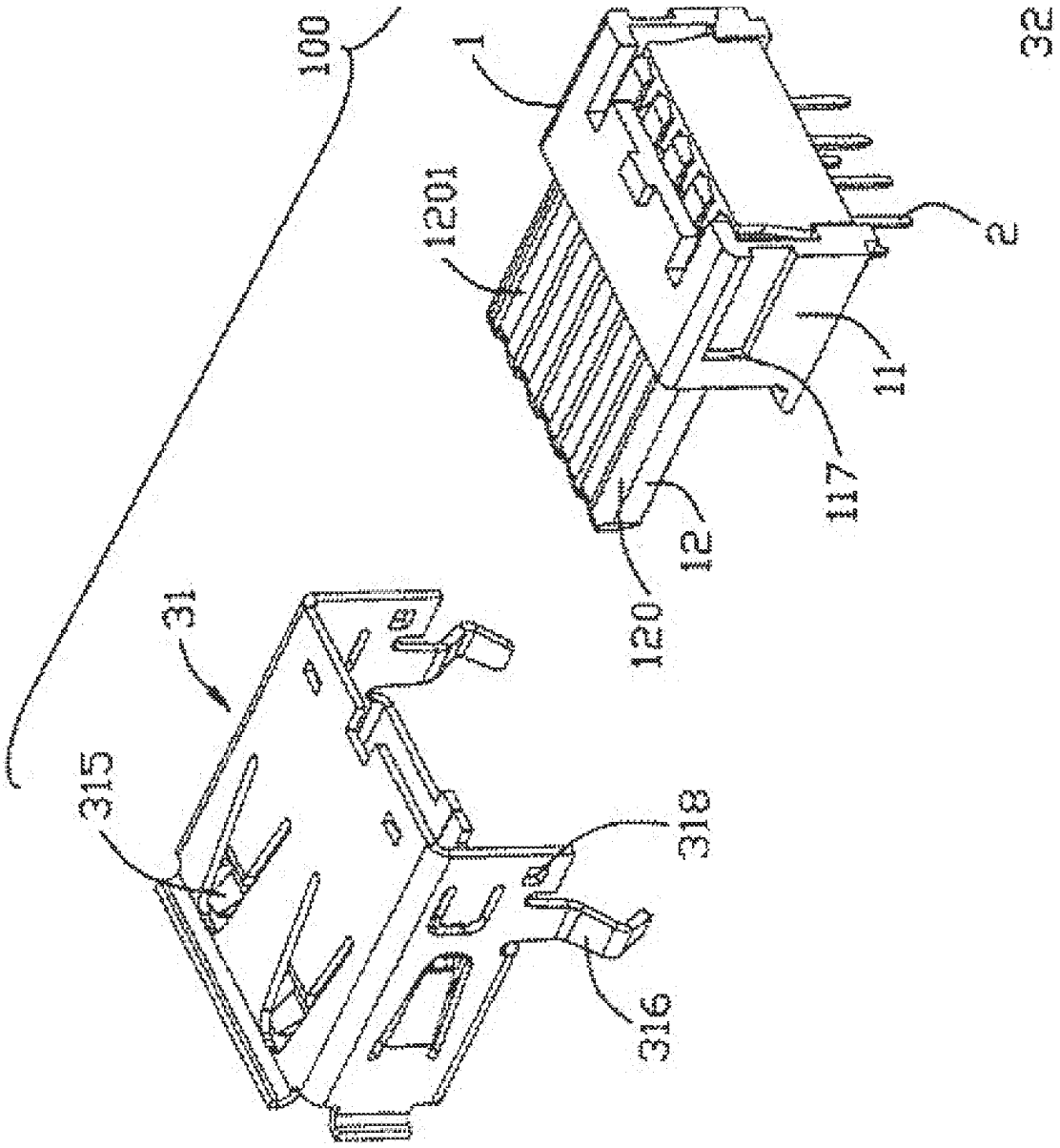


[FIG.1B]

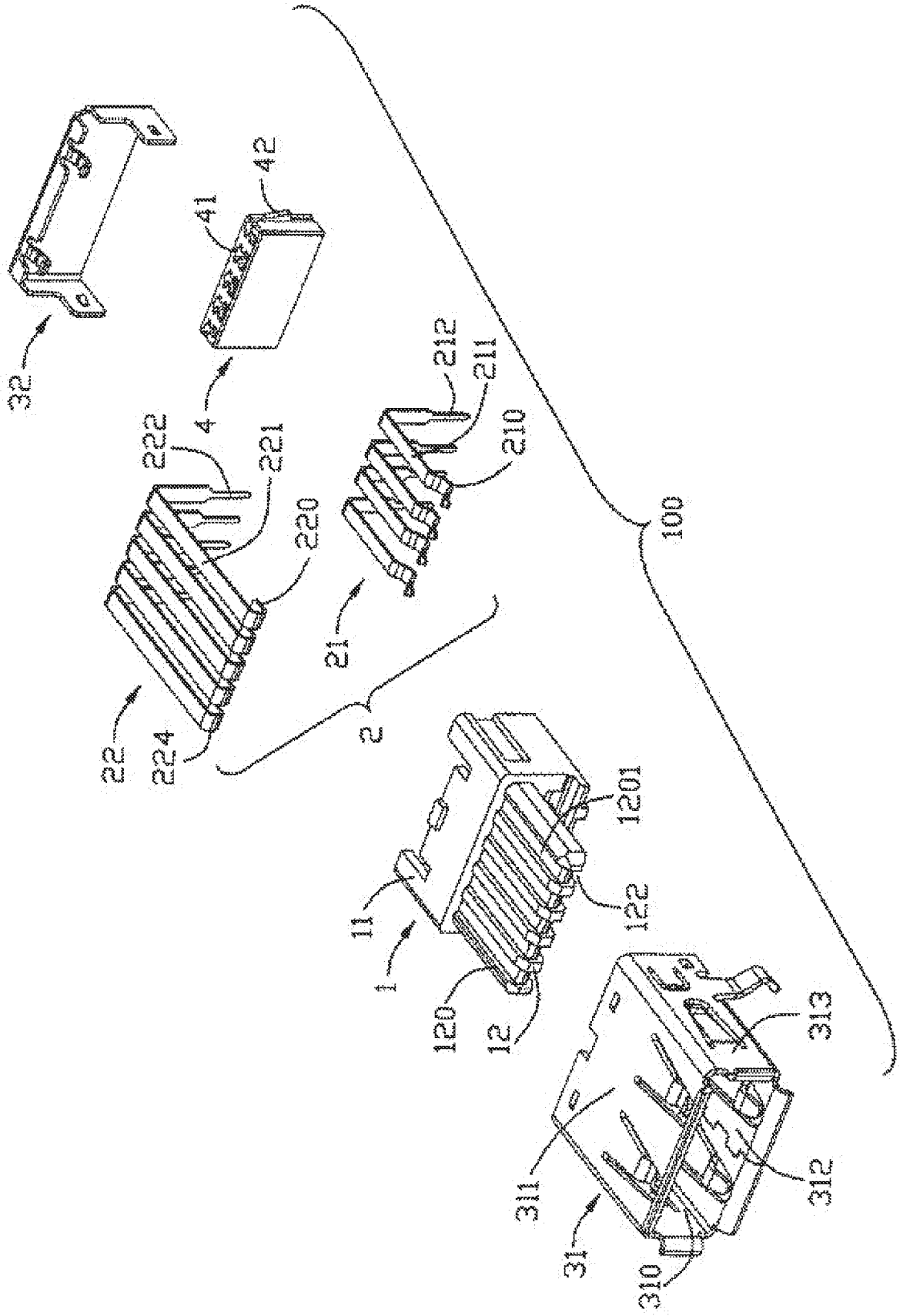


[FIG.2]

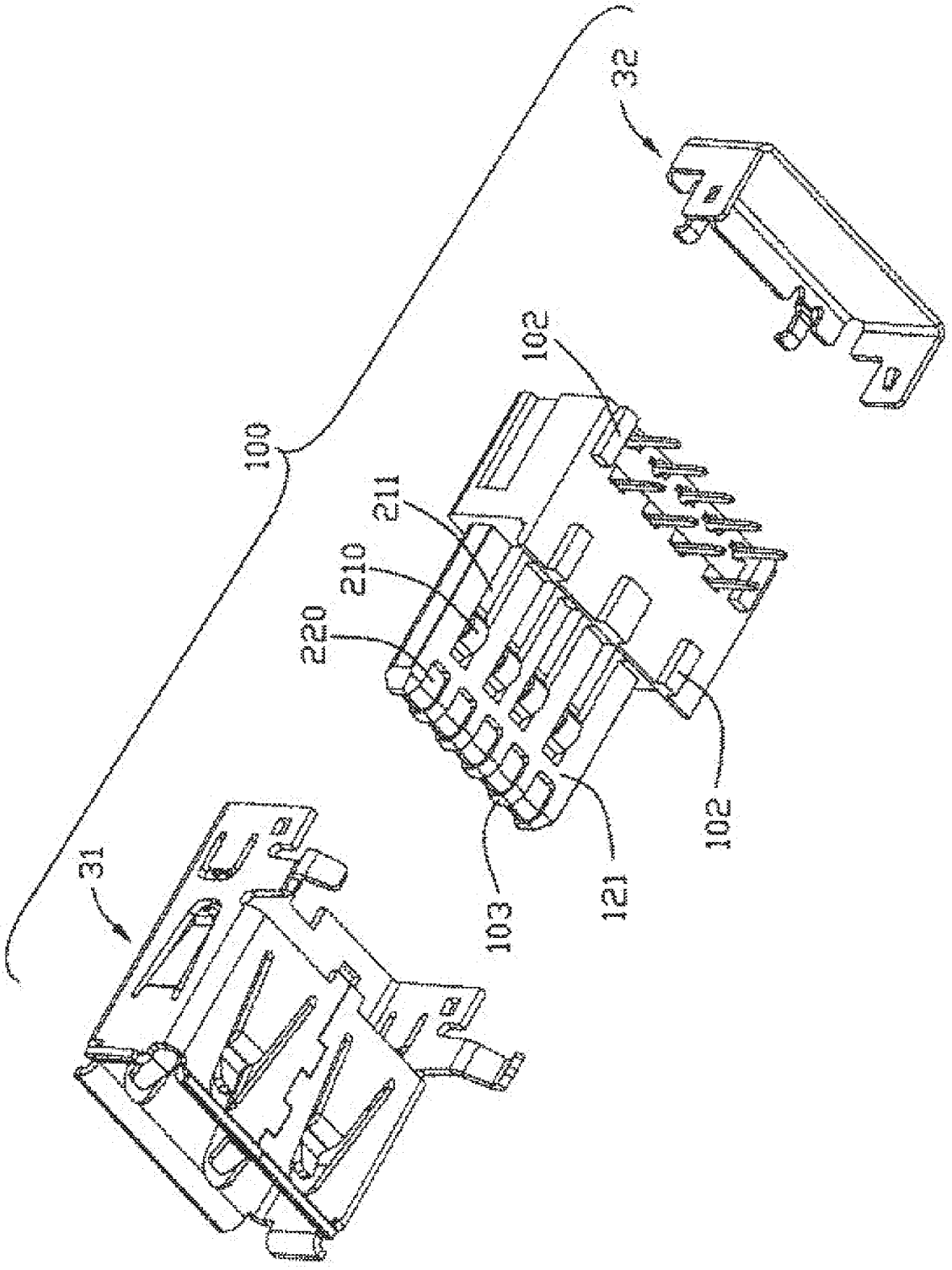




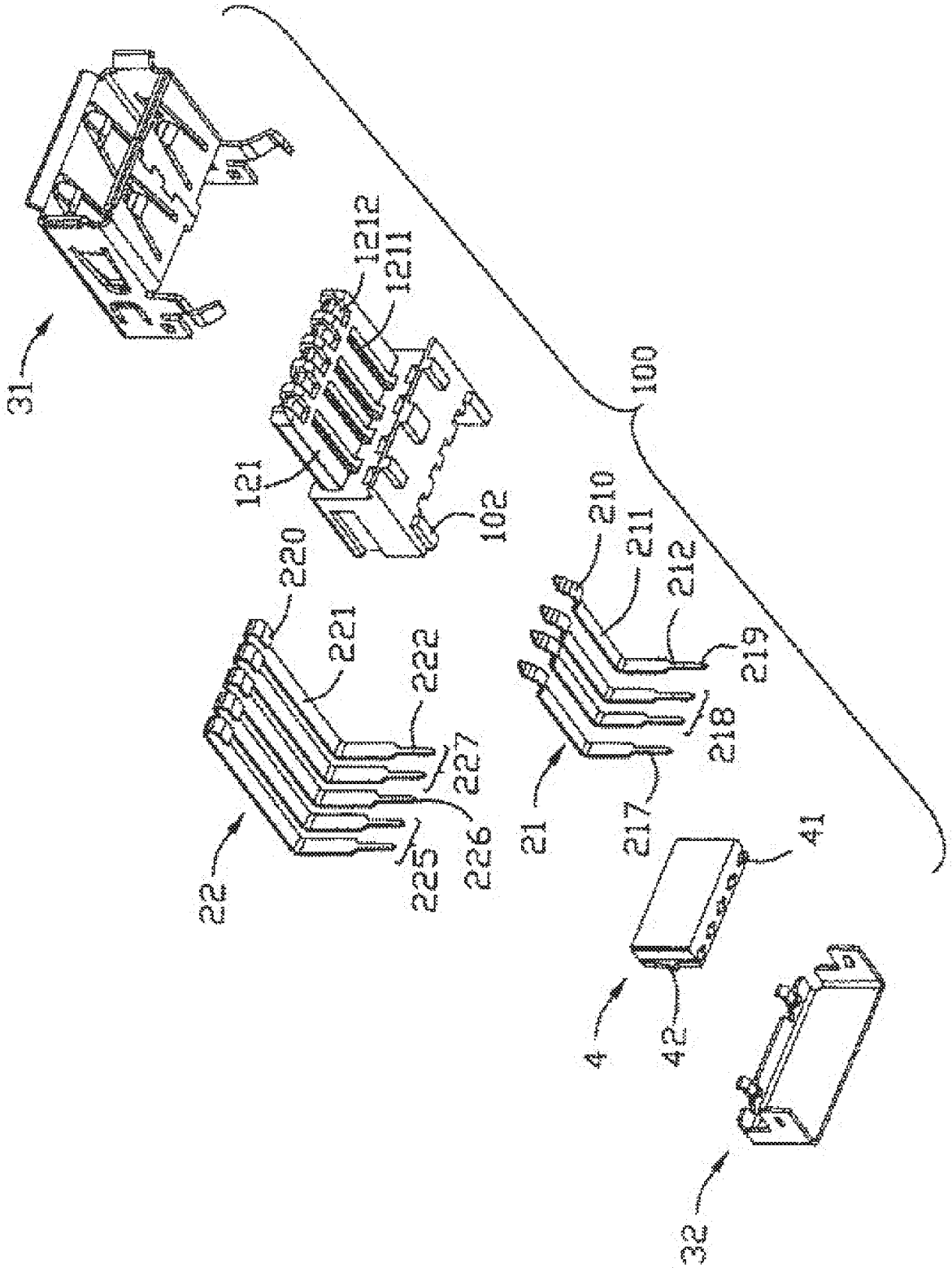
[FIG.3]


32
41
42
4
222
221
220
212
211
210
21
22
224
2
100
1201
11
122
1
120
12
313
311
312
31
310

[FIG.4]



[FIG.5]

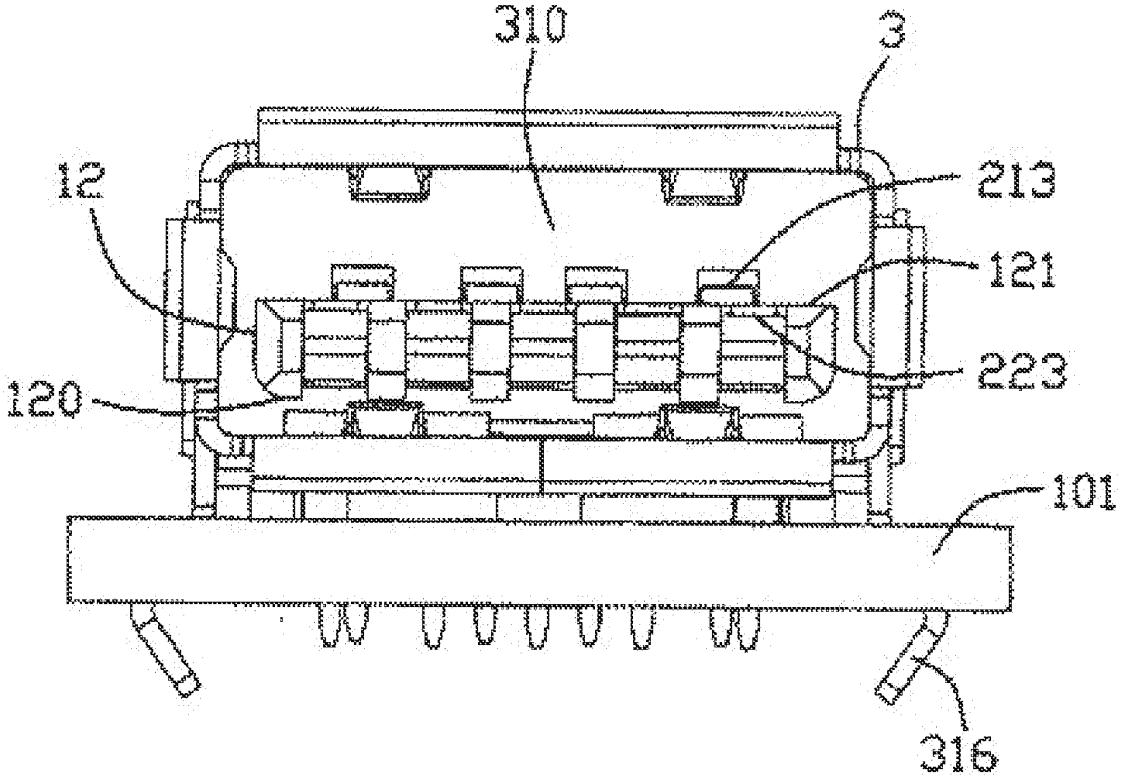

31
1212
1211
121
102
100
210
211
212
219
220
221
222
227
226
225
218
217
21
22
41
4
42
32

[FIG.6]

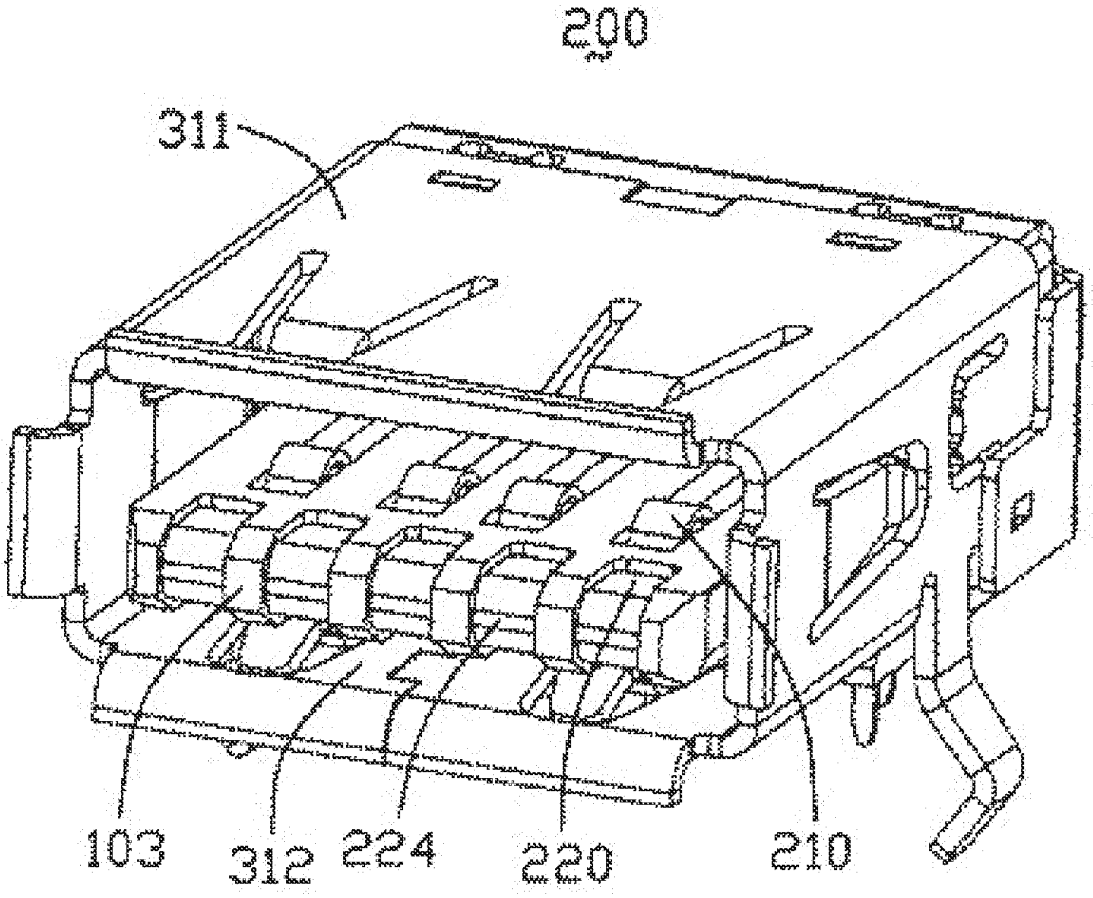
31
1
1201 1211
220
22
221
210
21
211
113
111
100
222
212
4
32



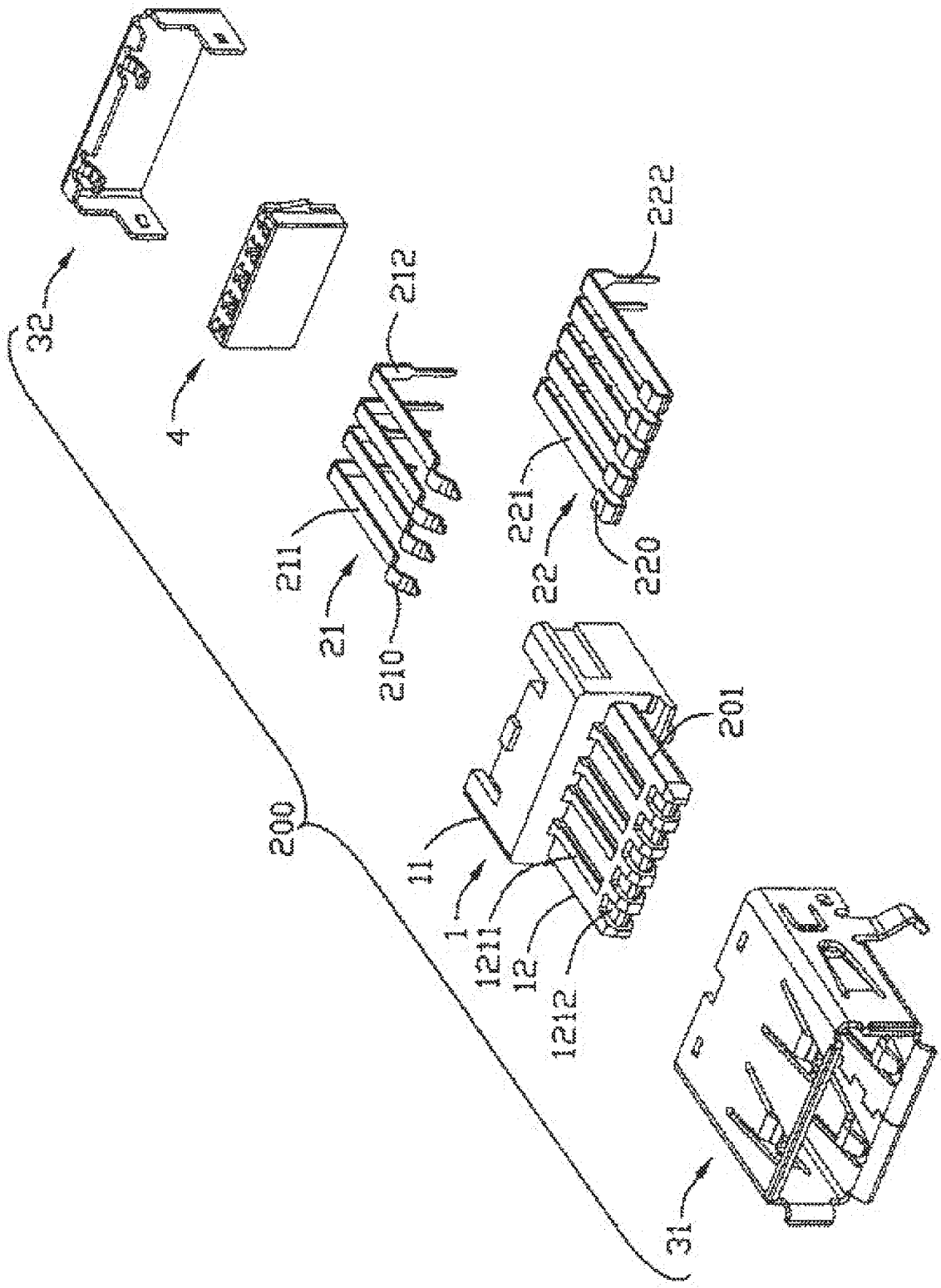
[FIG.7A]



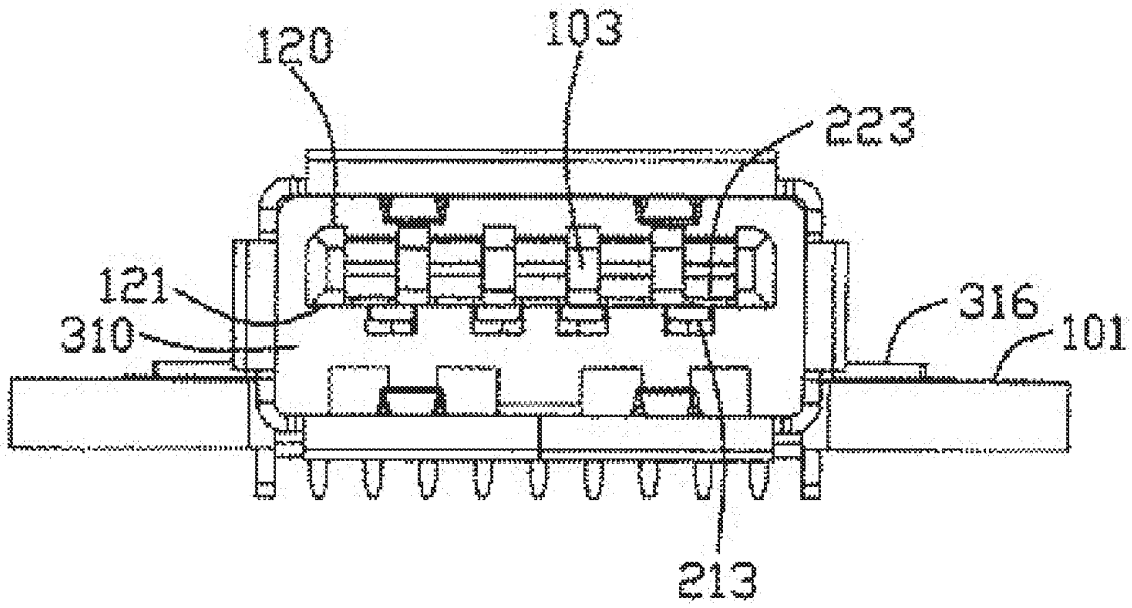
[FIG.7B]



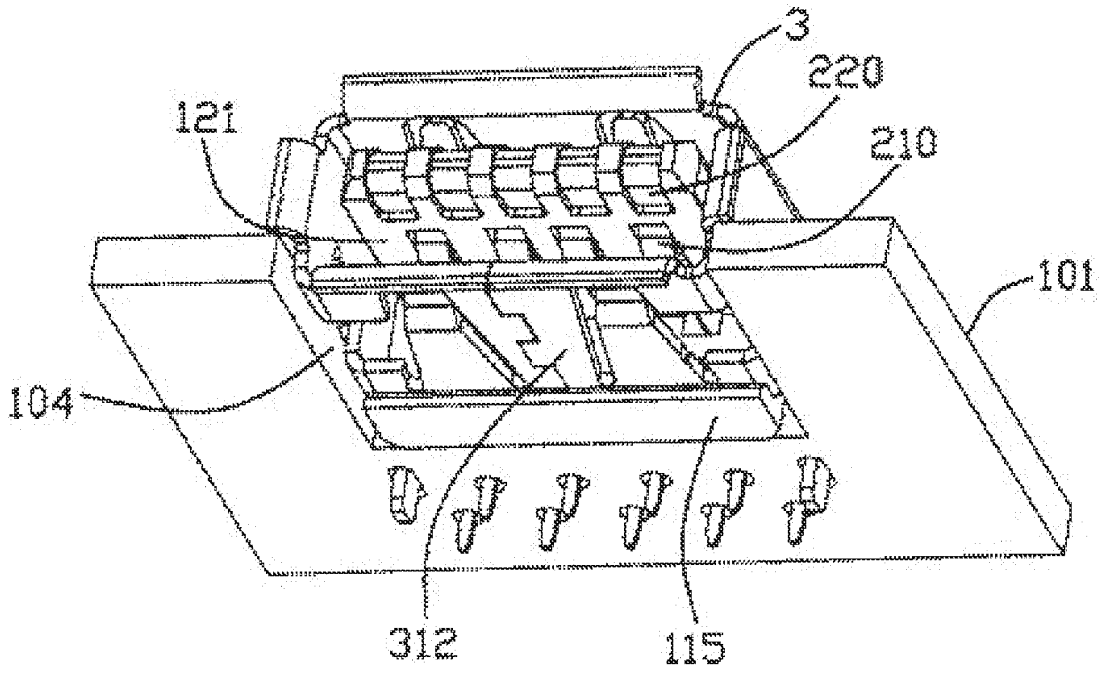
[FIG.8]



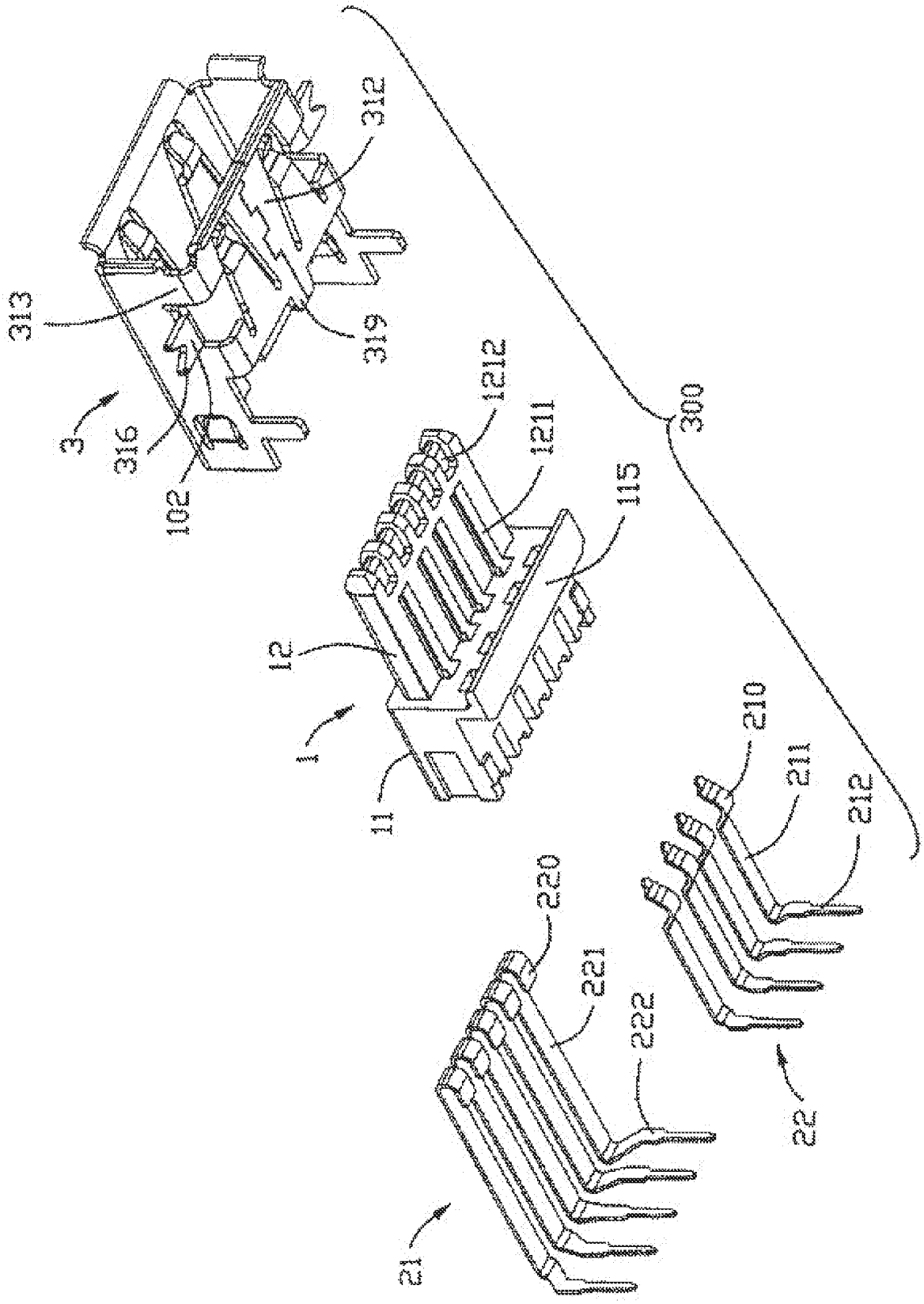
[FIG.9A]



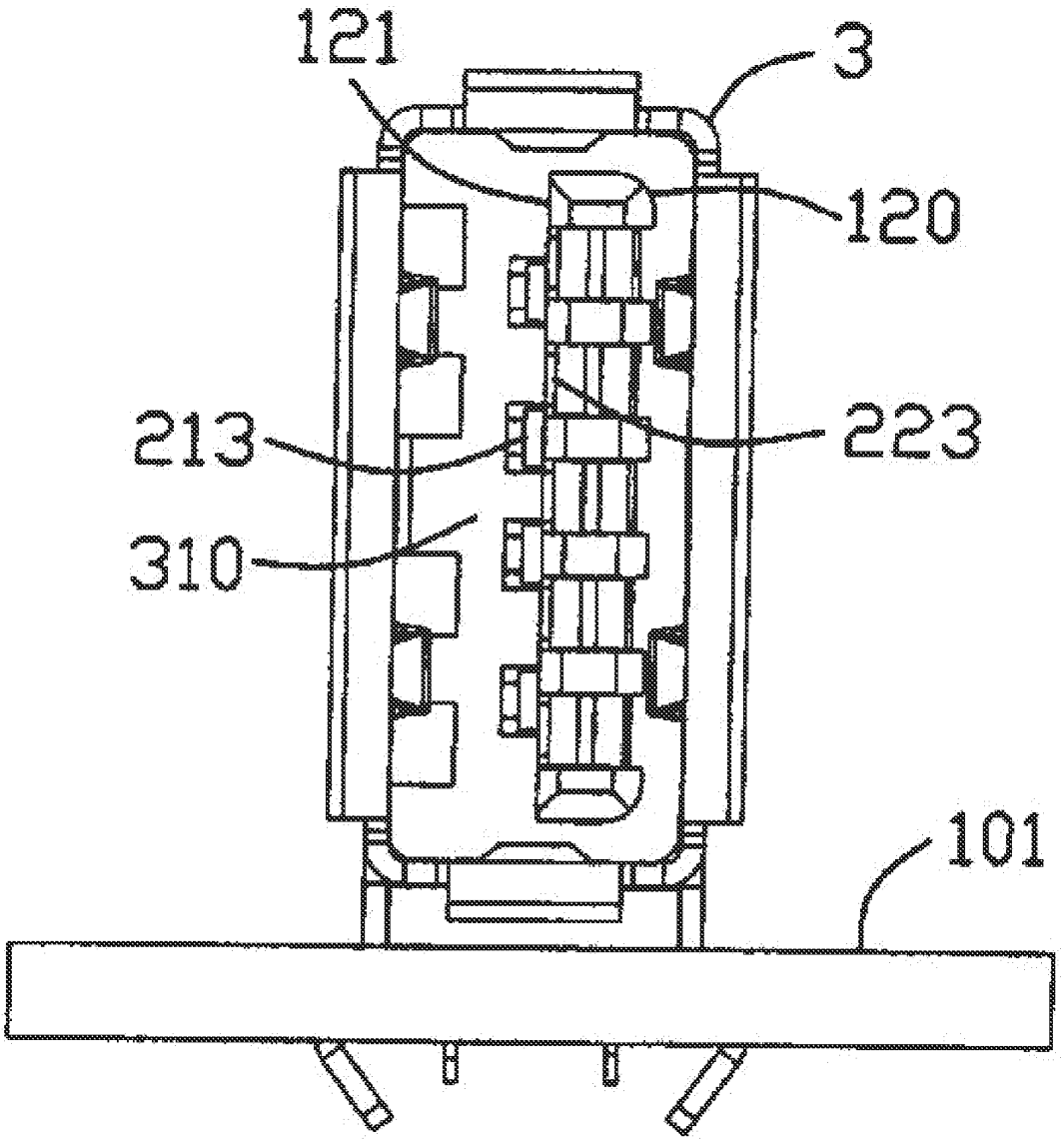
[FIG.9B]



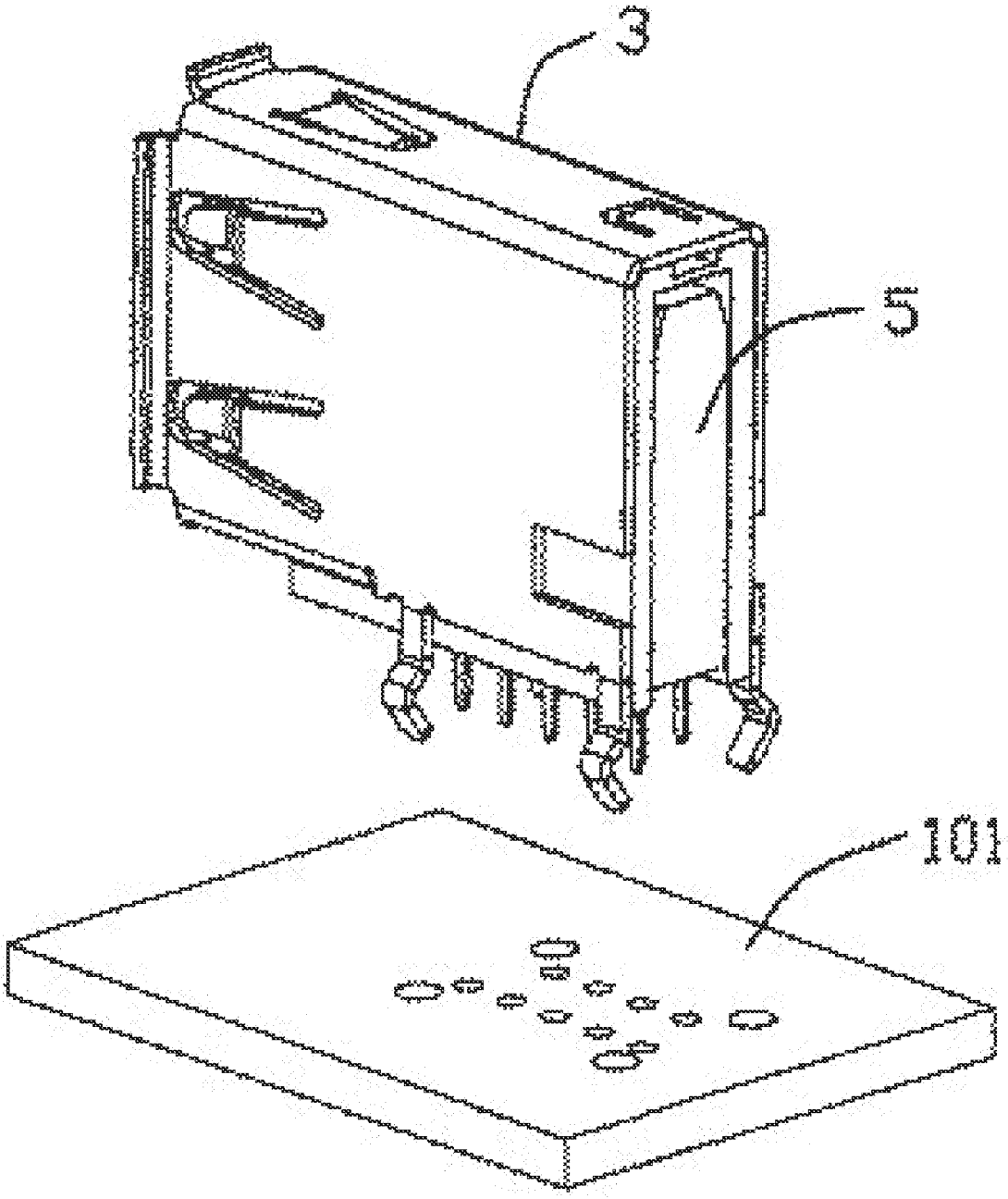
[FIG.10]


313
312
319
3
316
102
1212
1211
115
12
1
11
300
210
211
212
220
221
222
21
22

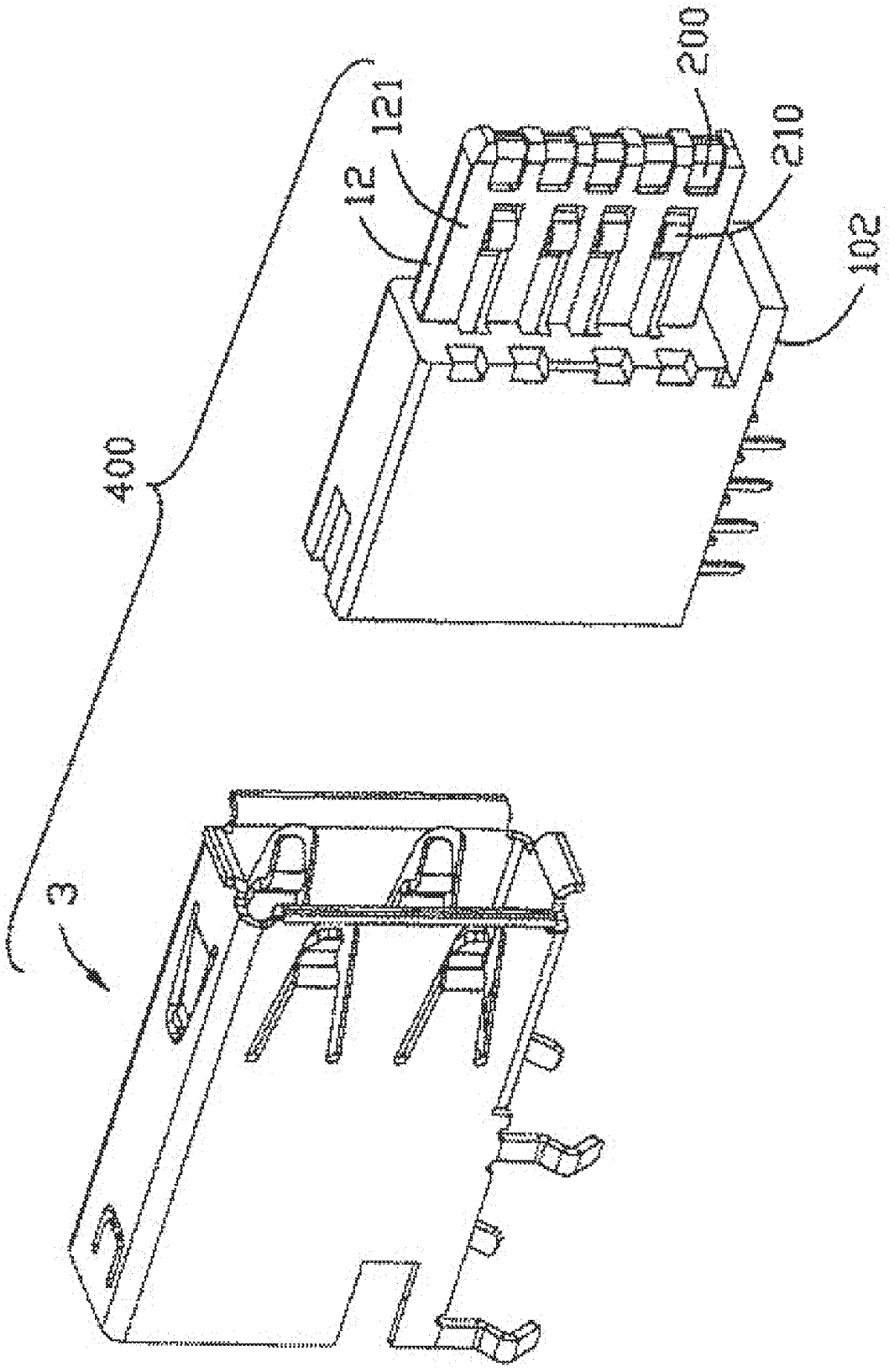
[FIG.11A]



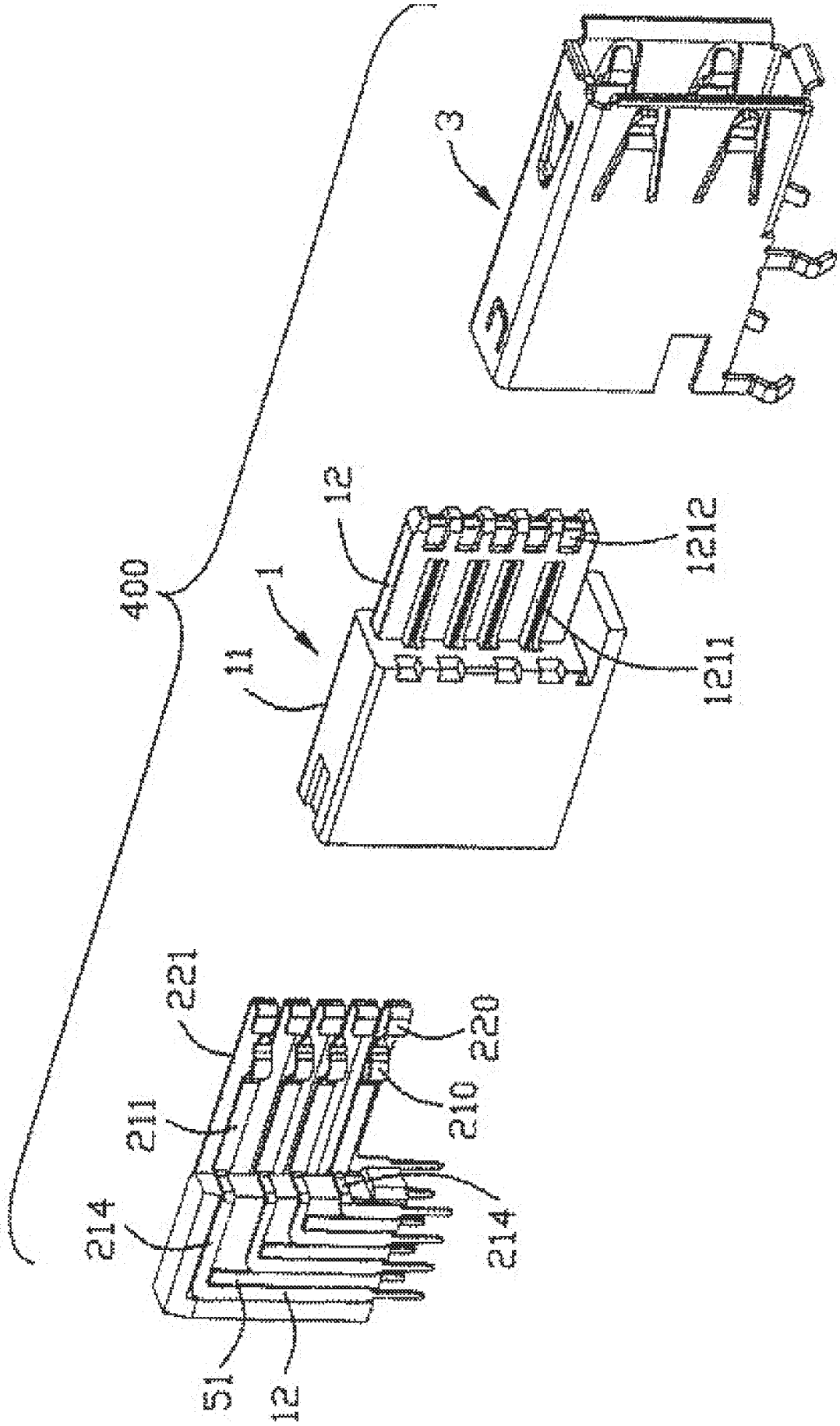
[FIG.11B]



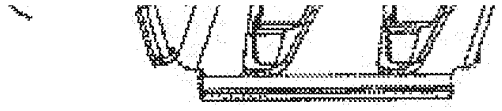
[FIG.12]



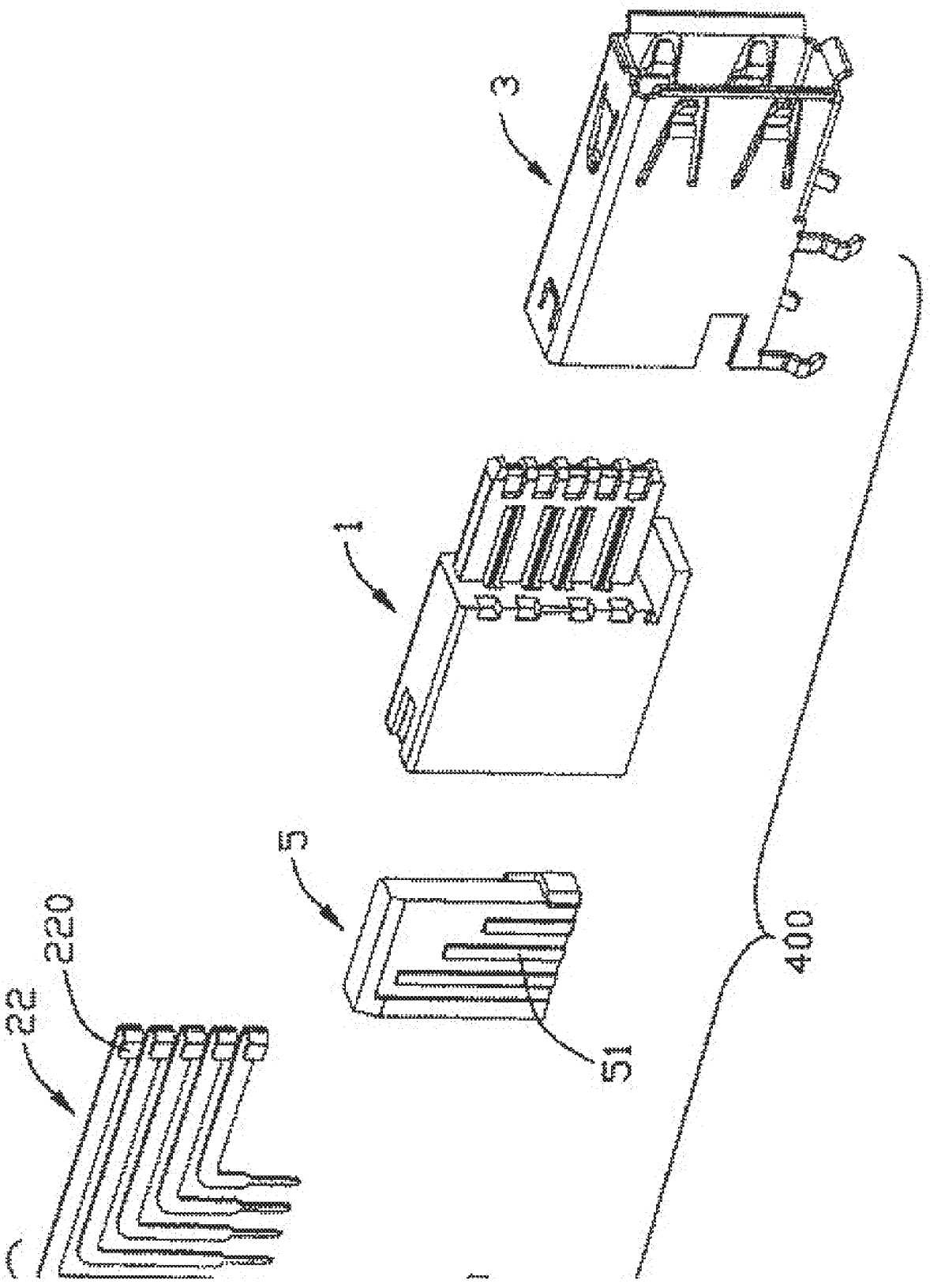
[FIG.13]

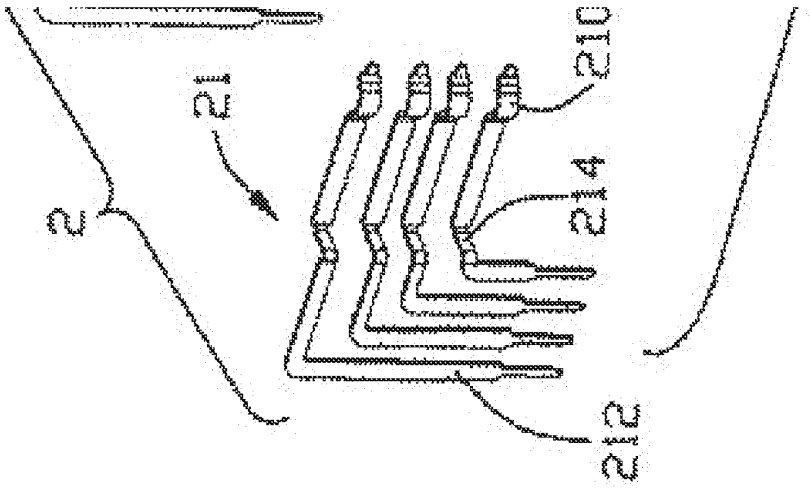

400
3
1
11
12
1212
1211
221
220
210
211
214
214
51
12

[FIG.14]

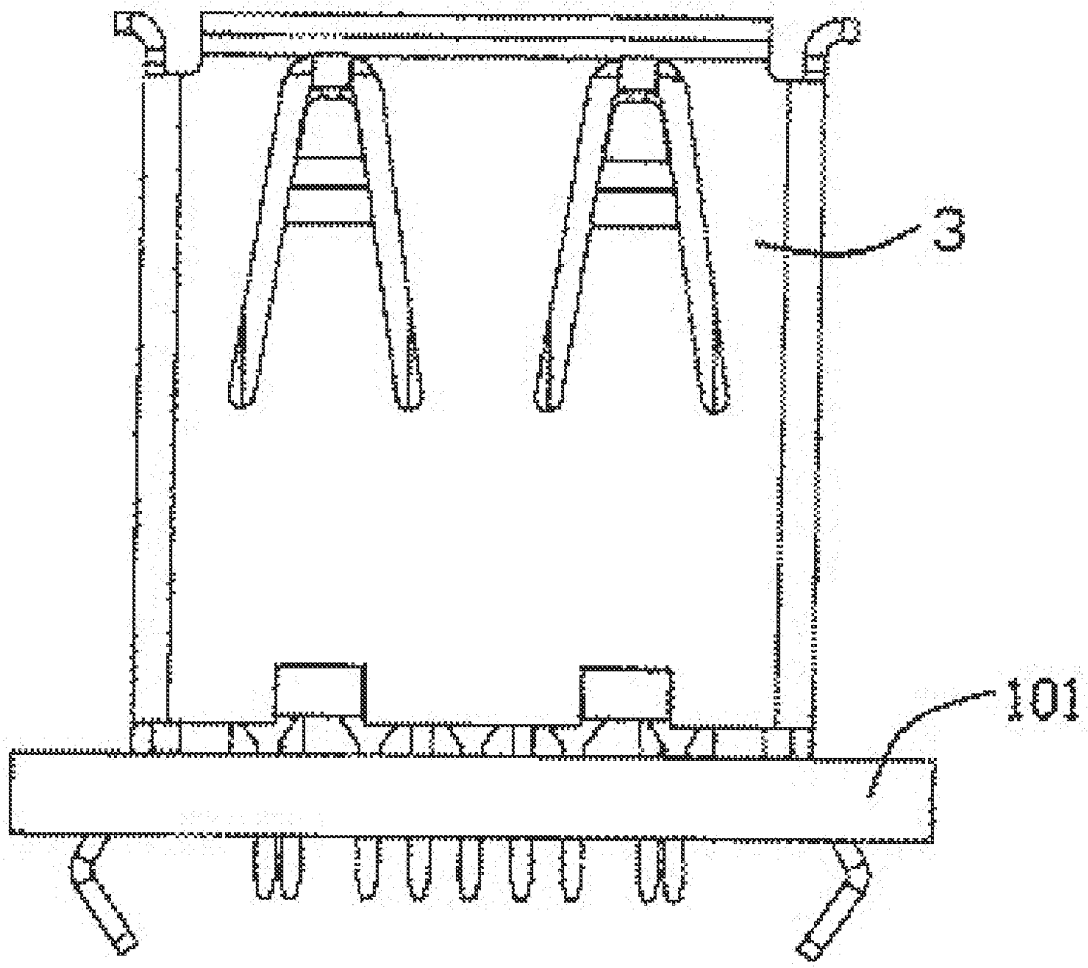


[FIG.15]

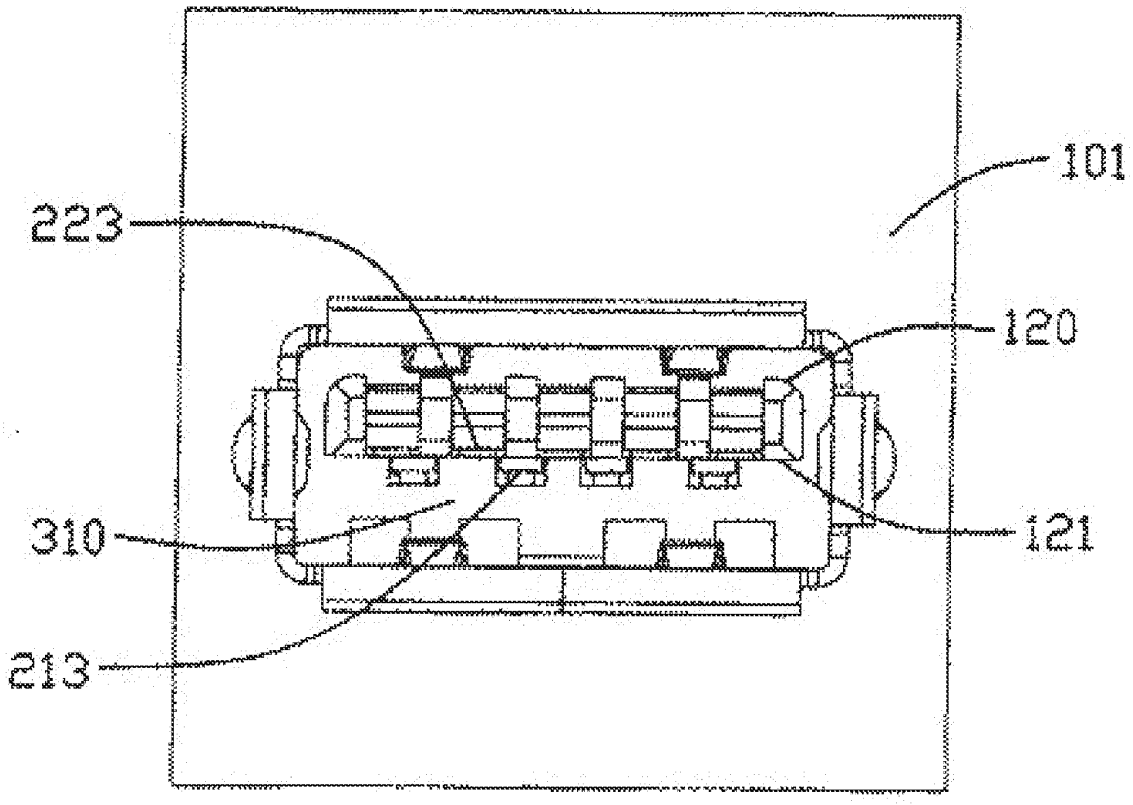




[FIG.16A]



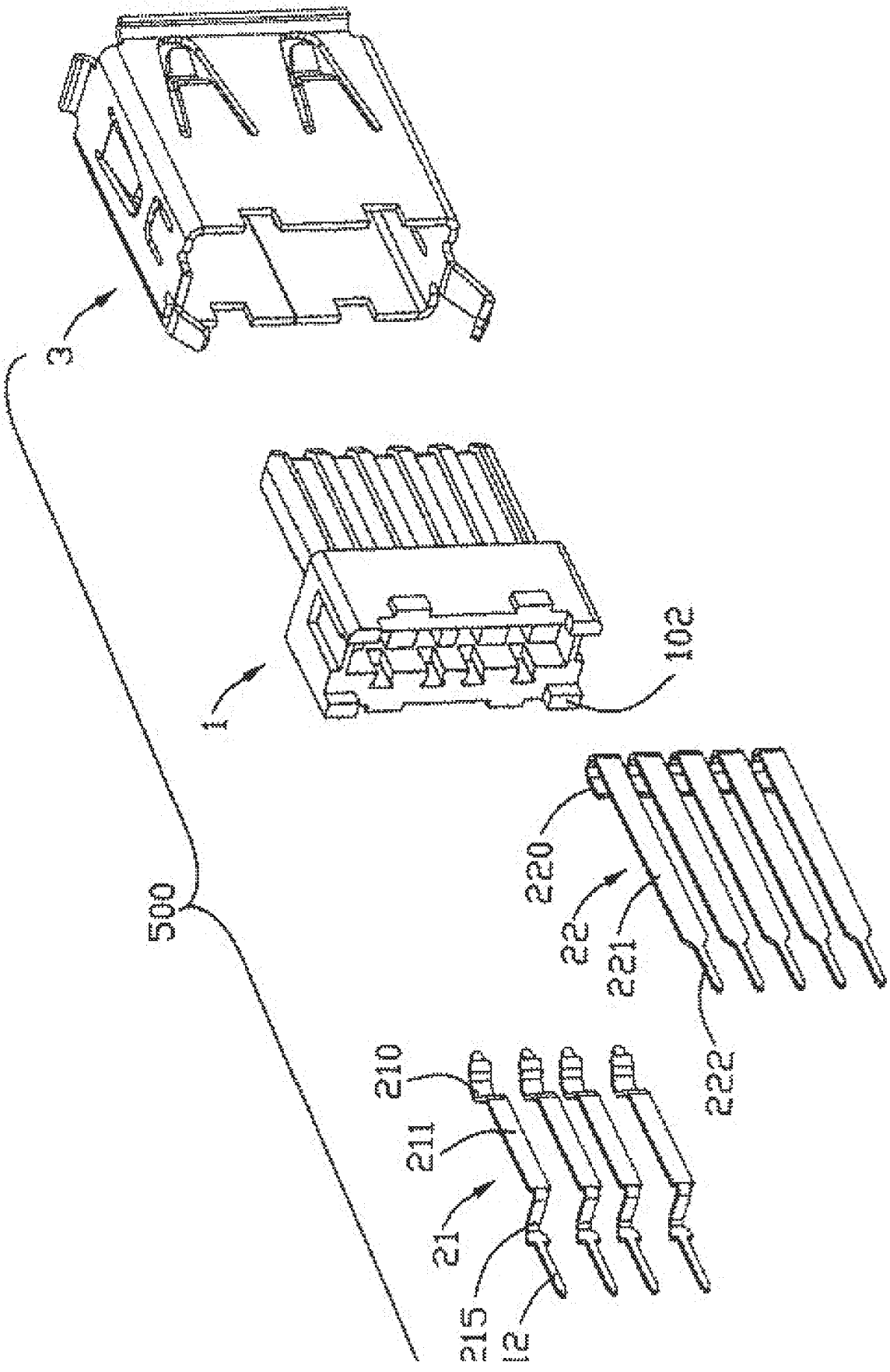
[FIG.16B]



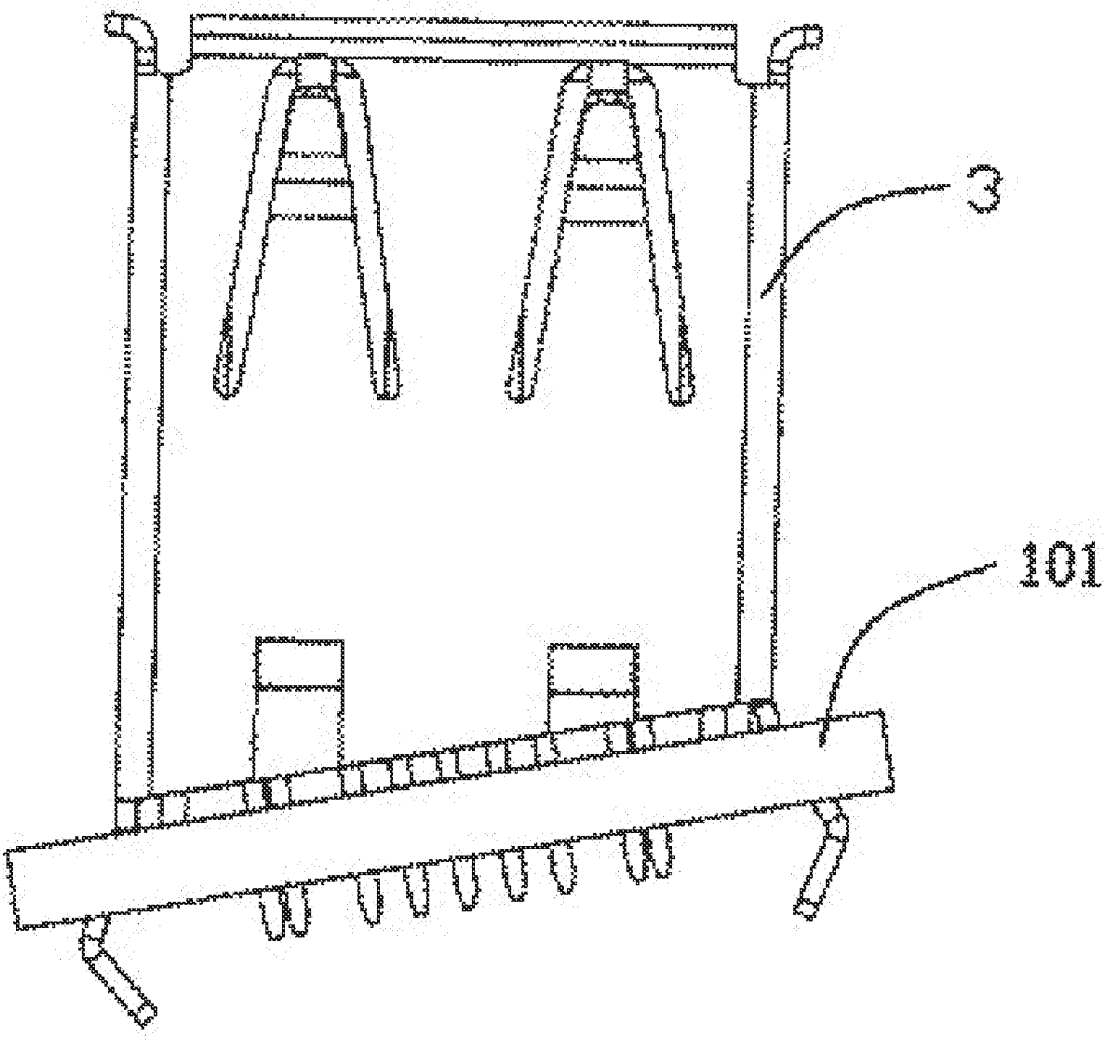
[FIG.17]

500
3
103
12
121
220
11
210
102

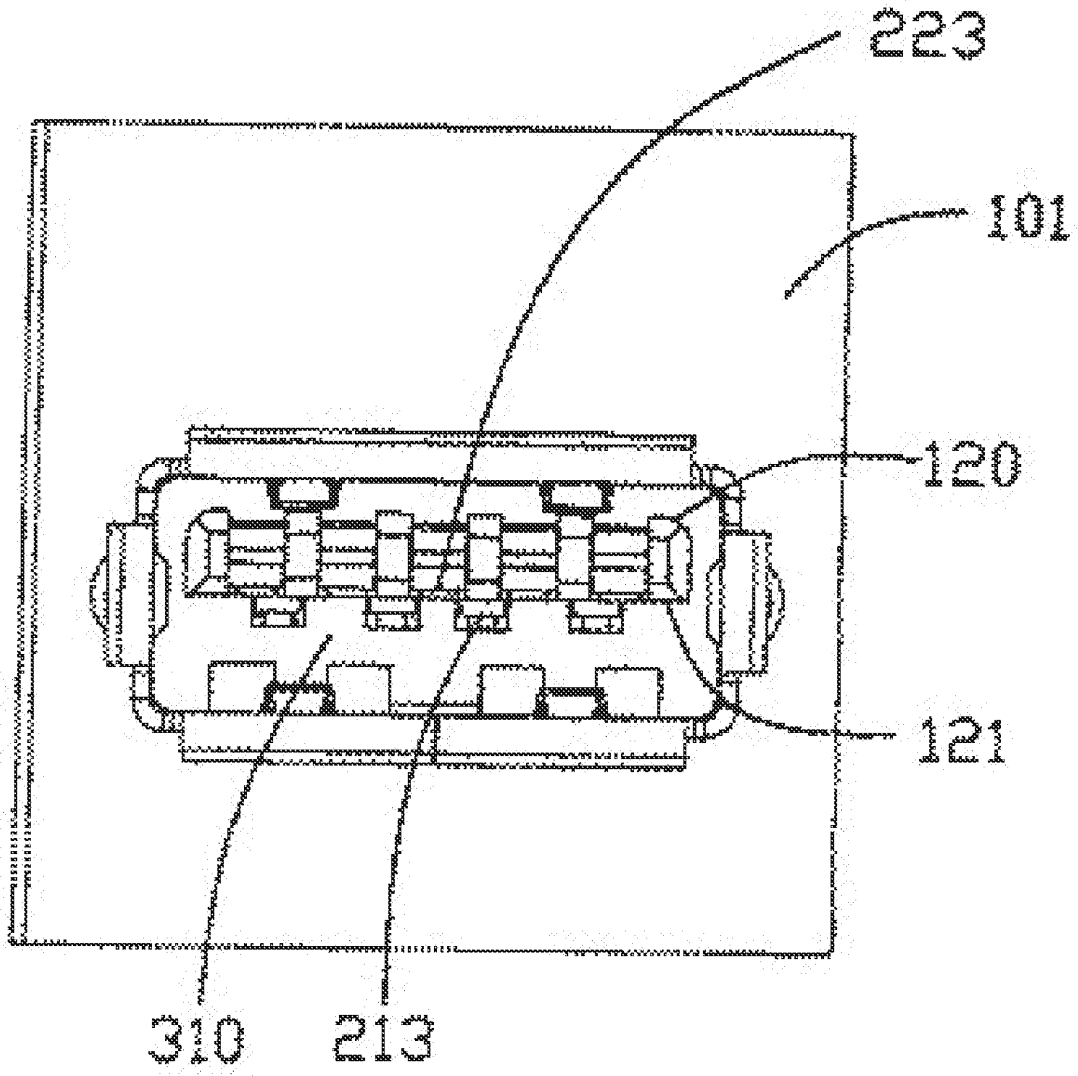
[FIG.18]



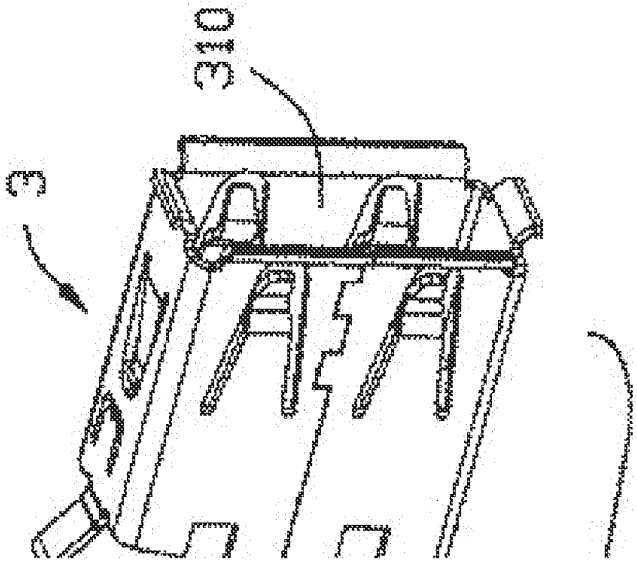
[FIG.19A]

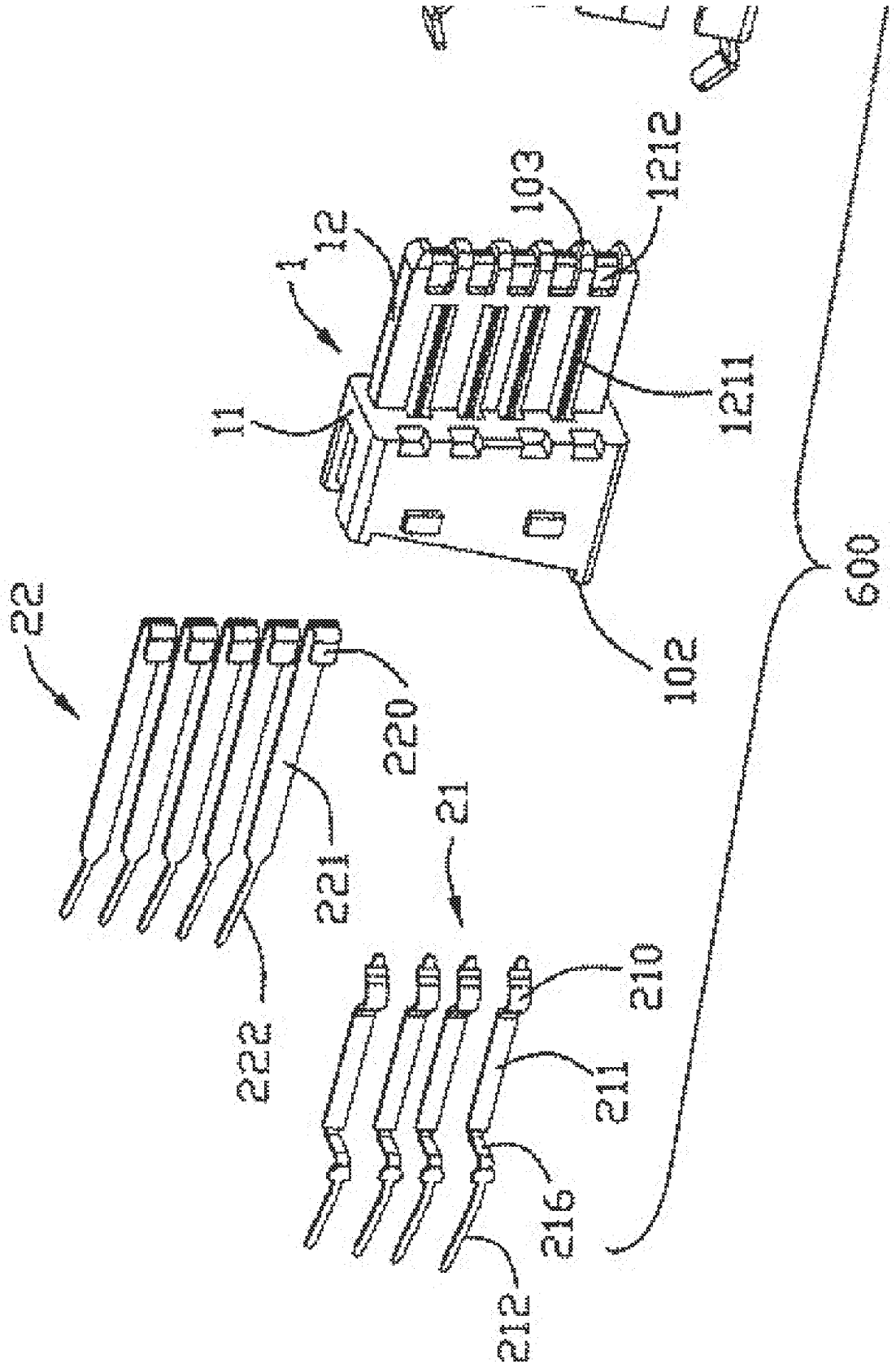


[FIG.19B]

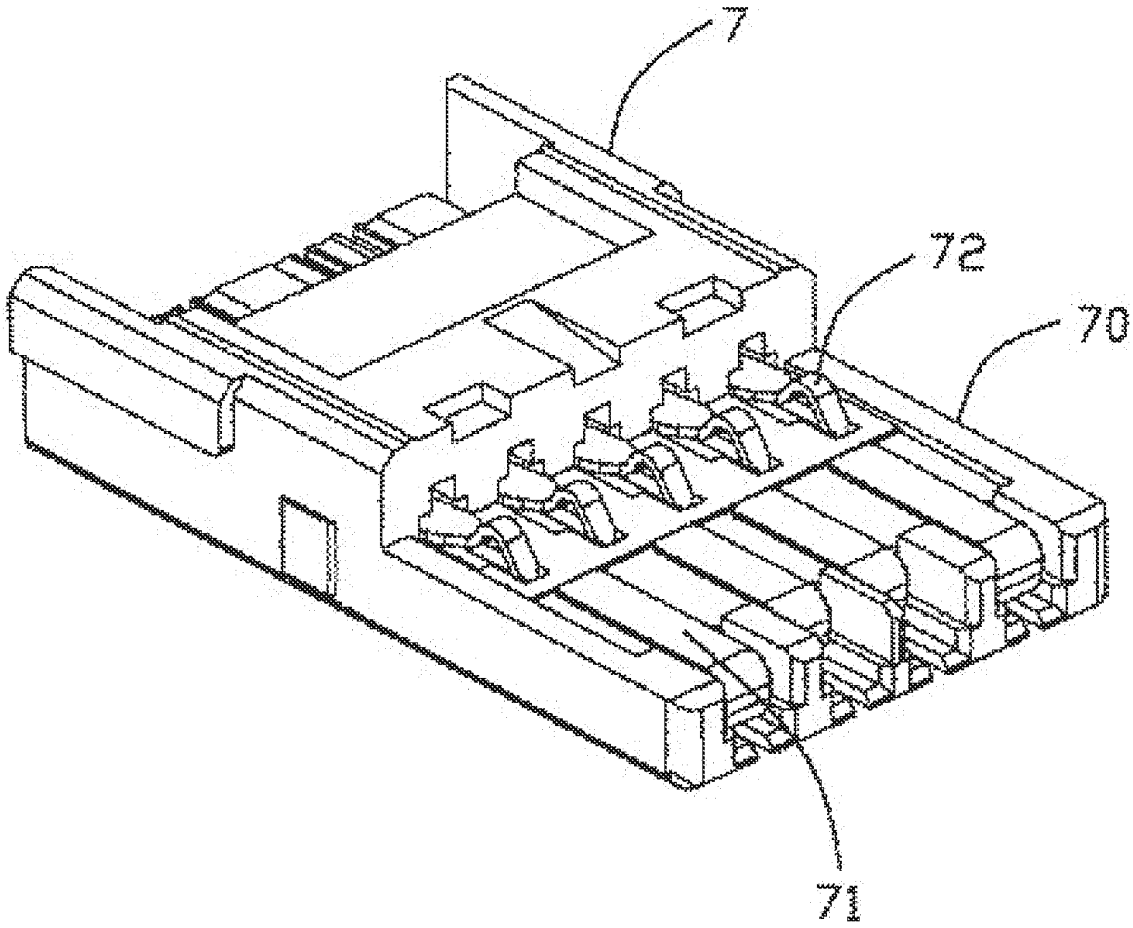


[FIG.20]

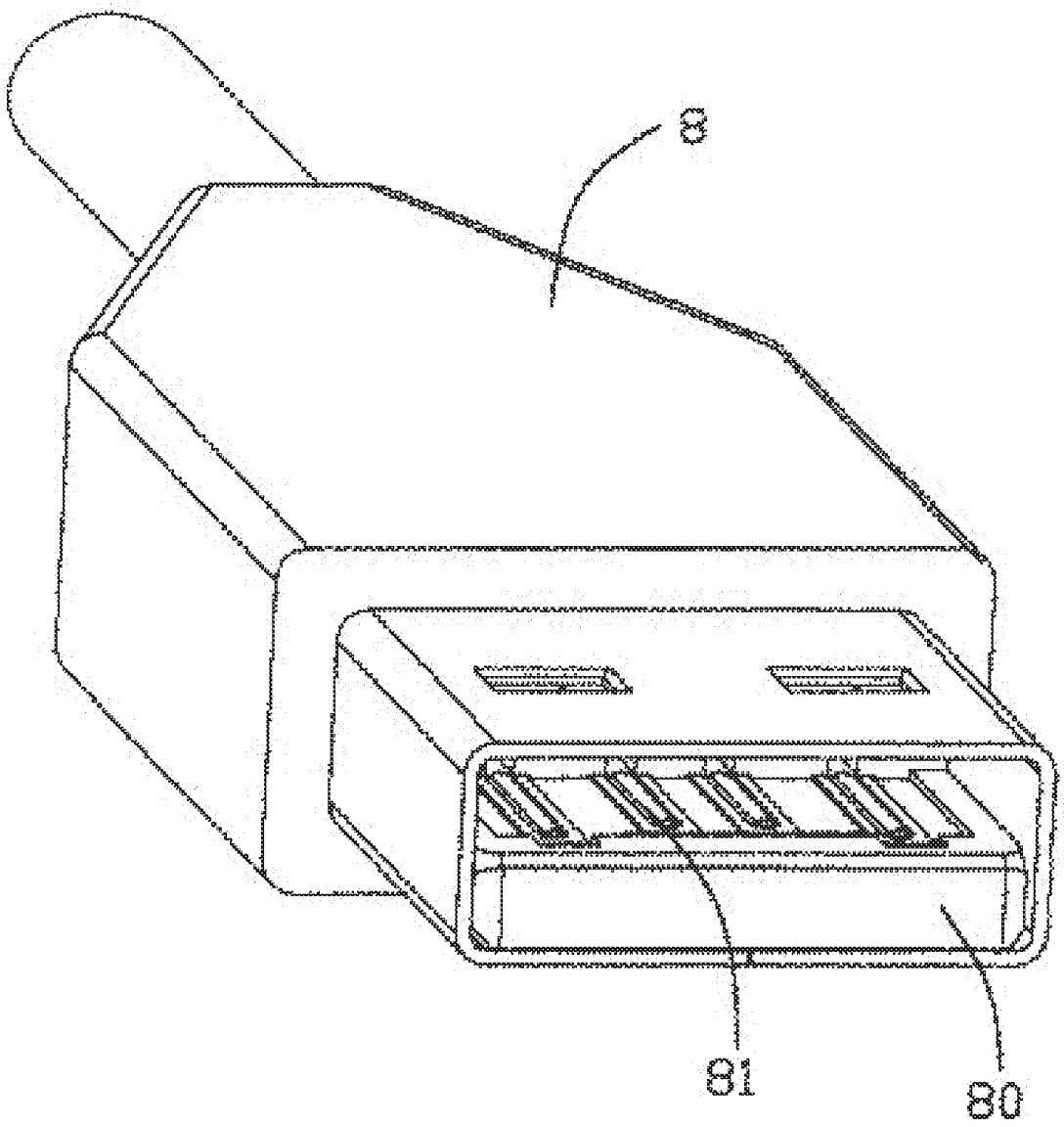




[FIG.21]



[FIG.22]


8
81
80

Litigation Search Report CRU 3999

Reissue Application No.: 17/020,359

TO: Hetul Patel
Location: CRU
Art Unit: 3992
Date: November 2, 2020

U.S. Patent Number: 8,198,563

From: Patricia Martin
Paralegal Specialist
Location: CRU 3999
Phone: (571) 272-7705

Search Notes

1) I performed a search on the patent in Lexis Court Link for any open dockets or closed cases.

2) I performed a Key Cite Search in Westlaw, which retrieves all history on the patent including any litigation.

3) I performed a search in Lexis in the Federal Courts and Administrative Materials databases for any cases found.

4) I performed a search in Lexis in the IP Journal and Periodicals database for any articles on the patent.

5) I performed a search in Lexis in the news databases for any articles about the patent or any articles about litigation on this patent.

No Litigation was found

Citing References (22)

Treatment	Title	Date	Type	Depth	Headnote(s)
—	**1.** ELECTRICAL CONNECTOR HAVING MATING INTERFACE CONFIGURED BY COMPOSITE TONGUE MEMBER Out Of Plan US PAT 8475216 , U.S. PTO Utility An electrical connector includes an insulative housing defining a receiving cavity thereof, a tongue member retained to the receiving cavity, and a shell surrounding the housing....	July 02, 2013	Patents	—	—
—	**2.** SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION FOR INDUSTRIAL AND COMMERCIAL APPLICATIONS COMPRISES PLASTIC BASE, CONNECTION SLOT, TONGUE, FIRST CONTACTS, AND SECOND CONTACTS Out Of Plan DWPI 2010-N34367	Apr. 15, 2009	DWPI	—	—
—	**3.** RF 053711/0762 Out Of Plan	Sep. 08, 2020	Assignments	—	—
—	**4.** RF 051885/0765 Out Of Plan	Feb. 21, 2020	Assignments	—	—
—	**5.** PatStat 8198563	Oct. 06, 2020	Patent Status Files	—	—
—	**6.** ELECTRONIC MODULE AND DRUG DELIVERY DEVICE Out Of Plan US PAT 10806864 , U.S. PTO Utility The invention relates to an electronic module for recording information of a drug delivery device, the electronic module comprising at least one connector, wherein at least one...	Oct. 20, 2020	Patents	—	—
—	**7.** BIDIRECTIONAL DUPLEX ELECTRICAL CONNECTOR HAVING CIRCUIT BOARD AND COMBINATION OF THE BIDIRECTIONAL DUPLEX ELECTRICAL CONNECTOR AND DOCKING ELECTRICAL CONNECTOR Out Of Plan US PAT 10680393 , U.S. PTO Utility A bidirectional duplex electrical connector includes: a circuit board, which is provided with two sets of circuits; a base seat; a connection portion connected to a front end of...	June 09, 2020	Patents	—	—
—	**8.** BIDIRECTIONAL DUPLEX ELECTRICAL CONNECTOR HAVING CIRCUIT BOARD Out Of Plan US PAT 10559932 , U.S. PTO Utility A bidirectional duplex electrical connector includes: a circuit board provided with two sets of circuits; a base seat; and a tongue, top and bottom surfaces of the tongue are top...	Feb. 11, 2020	Patents	—	—
—	**9.** REVERSIBLE CONNECTOR INTERFACE Out Of Plan US PAT 10141671 , U.S. PTO Utility A reversible plug connector includes a plug housing having a housing contact disposed on an inner surface of the plug housing, a moveable plug insulator disposed within the plug...	Nov. 27, 2018	Patents	—	—

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Treatment	Title	Date	Type	Depth	Headnote(s)
—	**10.** ELECTRICAL CONNECTOR Out Of Plan US PAT 10141696 , U.S. PTO Utility An electrical connector includes: an insulated seat provided with a base seat and a connection plate; a metal housing covering the insulated seat; one row of first terminals; and...	Nov. 27, 2018	Patents	—	—
—	**11.** REVERSIBLE CONNECTOR INTERFACE Out Of Plan US PAT 10103471 , U.S. PTO Utility A reversible plug connector includes a plug housing having a housing contact disposed on an inner surface of the plug housing, a moveable plug insulator disposed within the plug...	Oct. 16, 2018	Patents	—	—
—	**12.** ELECTRONIC MODULE AND DRUG DELIVERY DEVICE Out Of Plan US PAT 10086141 , U.S. PTO Utility The invention relates to an electronic module for recording information of a drug delivery device, the electronic module comprising at least one connector, wherein at least one...	Oct. 02, 2018	Patents	—	—
—	**13.** ELECTRICAL CONNECTOR HAVING STEP FORMED BETWEEN CONNECTION SURFACES FOR BIDIRECTIONALLY ELECTRICAL CONNECTIONS Out Of Plan US PAT 10074947 , U.S. PTO Utility An electrical connector, into which a male plug can be bidirectionally inserted for connection, comprises: a plastic base; a tongue projectingly disposed at a front end of the...	Sep. 11, 2018	Patents	—	—
—	**14.** CONNECTOR, DOCKING STATION AND CONNECTING ASSEMBLY WITH THE CONNECTOR Out Of Plan US PAT 9634446 , U.S. PTO Utility A connector, configured to extend a plurality of interfaces, includes a housing and a plurality of pins extending out of the housing. The housing is designed to accommodate a...	Apr. 25, 2017	Patents	—	—
—	**15.** REVERSIBLE RECEPTACLE CONNECTOR Out Of Plan US PAT 9472873 , U.S. PTO Utility Embodiments relate to a receptacle assembly for connecting to a plug of a connector. The receptacle includes a first contact on a first side of an insulating member. The first...	Oct. 18, 2016	Patents	—	—
—	**16.** CONNECTOR ASSEMBLY Out Of Plan US PAT 9325116 , U.S. PTO Utility A connector assembly comprises a first connector and a second connector. The second connector is mateable with the first connector under any one of a normal state and a reversed...	Apr. 26, 2016	Patents	—	—

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Treatment	Title	Date	Type	Depth	Headnote(s)
—	**17.** USB PLUG CONNECTOR AND METHOD FOR MANUFACTURING THE SAME Out Of Plan US PAT 9153926 , U.S. PTO Utility A USB plug connector (100) includes an insulative housing (1), a number of contacts (2) retained in the insulative housing, a metal shield (3) covering the insulative housing, a...	Oct. 06, 2015	Patents	—	—
—	**18.** ELECTRICAL CONNECTOR FOR BIDIRECTIONAL PLUG INSERTION Out Of Plan US PAT 9142926 , U.S. PTO Utility An electrical connector, into which a male plug, having an insulation base, a metal housing covering the base and a connection space therebetween, may be inserted in a...	Sep. 22, 2015	Patents	—	—
—	**19.** MULTI-TYPE RECEPTACLE CONNECTOR AND PLUG CONNECTOR APPLIED THERETO Out Of Plan US PAT 9077128 , U.S. PTO Utility A multi-type receptacle connector includes a receptacle insulator, main receptacle contacts arranged at the receptacle insulator to provide an electric contact point corresponding...	July 07, 2015	Patents	—	—
—	**20.** REVERSIBLE USB CONNECTOR Out Of Plan US PAT 9065231 , U.S. PTO Utility Disclosed herein is a two-way plug which can be inserted into a connection port regardless of the orientation of the plug. The two-way plug includes a rectangular frame, a hard...	June 23, 2015	Patents	—	—
—	**21.** PLUG CONNECTOR AND CONNECTOR ASSEMBLY Out Of Plan US PAT 8882515 , U.S. PTO Utility A plug includes an insulation body, a plurality of first contacts, and a plurality of second contacts. The plurality of first contacts are assembled in the insulation body and...	Nov. 11, 2014	Patents	—	—
—	**22.** CABLE CONNECTOR, RECEPTACLE CONNECTOR AND CONNECTOR ASSEMBLY THEREOF WITH IMPROVED CONTACT ARRANGEMENT Out Of Plan US PAT 8777664 , U.S. PTO Utility A connector assembly includes a cable connector and a receptacle connector. The receptacle connector includes a receptacle housing defining a receiving slot and a number of...	July 15, 2014	Patents	—	—

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Job Number: 129056786

Results List (includes up to 250)

1. Results list for:8198563 or 8,198,563
   Client/Matter: -None-
   Terms: 8198563 or 8,198,563
   Search Type: Terms and Connectors
   Narrowed by:

Content Type	Narrowed by
Dockets	Case Status: Open,Unknown,Closed

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Results for: **8198563 or 8,198,563**

Dockets

1. 00-1-00325-0, STATE OF WASHINGTON VS WALTERS, STEPHEN G

... Attorney 8198562 EntryCode: OAPAT Order Appointing Attorney 31 2002-01-18 Motion HearingAdmit/deny **8198563** EntryCode: MTHRG ACTION MiscInfo: 02-08-2002JP Motion HearingAdmit/deny 32 2002-02-08 Order Modifying ...

Court: Clallam County Superior Court | **Date:** Oct 10, 2000

2. 362001TR067329000ACH, STATE OF FLORIDA v. PITUCCIO, JOSEPHINE

... 10/18/2001 8332386 2001-11-26 DEFENDANT SHOWED PROOF THAT SCHOOL WAS COMPLETE 10596720 **8198563** 2001-10-18 Case DisposedCASE DISPOSED BY JUDGE C CLERK 11047639 8198562 2001-10-18 ...

Court: Lee Circuit & County Court | **Date:** Oct 01, 2001

3. ADVANCED CONSTRUCTION & RESTOR Vs. MATA AMRITANANDAMAYI CENTER, et al.

... for default jdmt 8198562 2014-06-17 Order grant motion to extend deadline **8198563** - Judge:DALTON JOHN G Clerk:JC3 M 8198564 2014-06-10 Alias / Pluries ...

Court: Kane County Circuit Court | **Date:** Mar 28, 2014

4. AMERICAN FAMILY MUTUAL INSURANCE CO vs. DEILY ET AL

... 8198564 2009-02-11 FILE STAMP 2/11/2009, REQUEST AND SERVICE INSTRUCTION FORM, (ALIAS) **8198563** 2009-02-11 SCHED. ANSWER DATE on 04/02/09,09:30am,Div 61 8198562 2009-02-11 ALIAS SUMMONS ...

Court: Johnson County District Court | **Date:** Jan 07, 2009

5. ANDREA SOBEK, MARLENE SOBEK, NORBERT SOBEK V. COLLIN APPRAISAL DISTRICT

... DF 1ST INTROGS 8198562 Source: Fees DateEntered: 04/22/2004 2004-06-17 AGREEMENT JUDGMENT-SIGNED **8198563** Source: Order DateEntered: 06/17/2004 2004-06-18 DOCKET SHEET 8198564 Source: Order...

Court: Collin County District Court | **Date:** Jan 09, 2004

6. BANK ONE, N.A. VS MCKOY, ANGELA M

... 100102 8198562 2002-09-25 WRIT OF POSSESSION ISSUED sw0925 #WRIT: 1 OCSO **8198563** 2002-09-25 Notice of Limited Appearance as Co-Counsel sw0925 8198564 2002-09-24 FINAL ...

Court: Osceola Circuit & County Court | **Date:** Mar 25, 2002

7. BLANDING, MARIA JEAN ERIKSON Vs. BLANDING, DAVID ALLEN

... 7 2004-12-08 NOTICE OF MOTION OR CROSS MOTION
 Control Number:200412080445 **8198563** Amount: $0.00 NOTICE OF MOTION OR CROSS MOTION 8 2004-12-02 STMT ...

Court: Monroe County Clerk Records | **Date:** Oct 13, 2004

8. CHILD SUPP SERVICES OFFICE OF RECOVERY SERVICES- vs. IDILIO ESQUIVEL

... Modified $ 7142.52 11 2007-11-07 Judgment # 1 Modified $ 7626.30 **8198563** Judgment # 1 Modified $ 7626.30 12 2007-12-05 Judgment # 1 ...

Court: Ogden County District Court | **Date:** Mar 21, 2007

9. CS-2015-743, CREDIT BUREAU SERVICES ASSOCIATION vs. MANTER, JAMES

... ON COLLECTIONS($ 0.50) Entry Date APR 25 2016 12:50:31:897PM Serial No **8198563** COURT CLERK ADMINISTRATIVE FEE ON COLLECTIONS($ 0.50) 2016-04-25 GARNISHMENT AFFIDAVIT W/SUMMONS ...

Court: Payne County District Court | **Date:** Dec 21, 2015

10. C ZUPANCIC VS PROGRESSIVE AUTO

... OPENED FOR SRS 8198565 2006-03-29 CIVIL COVER SHEET 8198564 2006-03-29 COMPLAINT: **8198563** EntryComment: COUNT I AND II 2006-03-29 DEMAND FOR JURY TRIAL 8198562 ...

Court: Pasco Circuit & County Court | **Date:** Mar 29, 2006

11. De La Motte v. Menifee, et al

... Sarain, J. Martinez, J. Van der Hey-Wright, K. Sundaram, Speers (dc) **8198563** RULE 56.1 STATEMENT filed by Frederick Menifee, J. Crerand, Louis Sarain, ...

Court: New York Southern District Court | **Date:** Jan 27, 2000

12. ELIA HINKS VS CHRIS BEALS

... by ELIA HINKS GRANTED IN PART in the amount of $196.00 **8198563** 10 2001-10-12 Order to Show Cause re Temporary Restraining Order (...

Court: Ventura County Superior Court | **Date:** Oct 01, 2001

13. FIRST CHOICE MEDICAL CENTER AND TADESSE,MARDEYA v. METROPOLITAN PROPERTY & CASUALTY IN

... DEPO REP OF METROPOLITAN PROP & CASUALTY INS CO/SHIRLEY **8198563** Code AMNT DEPO REP OF METROPOLITAN PROP & CASUALTY INS CO/SHIRLEY ...

Court: Seminole Circuit & County Court | **Date:** Nov 17, 2000

14. GD-20-003359, In Re: Riverview SD 6/30/19 Report

... Report General Docket 10 Annual Audit Summary Activity Date 03/03/2020 2020-03-03 **8198563** Docket Type Annual Audit & Financial Report...

Court: Allegheny County Court of Common Pleas | **Date:** Mar 03, 2020

15. GLORY ELECTRIC INC. vs. GONZALES, SERGIO et. al.

... MOT FOR CONTEMPT, RM 220 SO CO ANNEX C OF S. **8198563** NOTICE OF HEARING Code NOH 22 1988-07-18 (NOTICE OF HEARING) ; ...

Court: Palm Beach Circuit & County Court | **Date:** Jul 15, 1987

16. GREENWOOD TRUST COMPANY VS KELLY BROWN

... Party Name Type Status Disposition Date GREENWOOD TRUST COMPANY KELLY BROWN **8198563** ...

Court: Camden County Superior Court | **Date:** Aug 03, 1999

17. IN RE: MICHAEL J UTUGA

... Paid: 0.00 APPEARANCE - SAMANTHA MARIE MARTINEZ 2016-05-06 COUNTERPETITION IN SAPCR **8198563** AssessedFee: 70.00 COUNTERPETITION IN SAPCR 2016-05-06 COURT COST (PAID) trans #25 ...

Court: Tarrant County District Court | **Date:** Mar 24, 2016

18. IN RE THE MARRIAGE OF MICHAEL PAUL BIERMAN vs.VINA MARIA SMOCK BIERMAN.

... LIBRARY FEE($ 6.00) Entry Date MAR 7 2012 4:51:55:063PM Serial No **8198563** LAW LIBRARY FEE($ 6.00) 0 2012-03-07 OKLAHOMA COURT INFORMATION SYSTEM REVOLVING ...

Court: Comanche County District Court | **Date:** Mar 07, 2012

19. In the Interest of R. M. S. vs Department of Family and Protective Services

... filed 8198564 Description Court Reporter Reporters record filed 2013-05-28 Response due **8198563** Description District Clerk Response due 2013-06-05 Letter issued by the court ...

Court: 1st Court of Appeals | **Date:** Apr 18, 2013

20. In the Matter of the Joint Petition for Divorce of: Autumn Narmore and Michael Narmore, Petitioners.

... 9:00 AM Details Present: Marcek, Cliff W - Attorney 2009-05-18 Order **8198563** 2009-05-21 Notice of Entry of Order/Judgment 8198564 2009-05-26 Notice of Withdrawal ...

Court: Clerk of courts | **Date:** Apr 11, 2006

21. J F NIX A NIX VS MARC A JAIME

... CANCELED|Calendar Posting on 06-15-2012 2012-07-23 CAL: DOCKET SOUNDING|Calendar Posting on 04/02/2012 **8198563** CAL: DOCKET SOUNDING|Calendar Posting on 04/02/2012 2012-07-16 CR: DCKT SNDNG CONT ...

Court: Brevard Circuit & County Court | **Date:** Jul 11, 2011

22. MARK WOODS VS JAMES HUBBARD

... none. 8198562 Description FINAL HEARING SCHEDULED 2018-05-10 Demand for Jury Trial **8198563** Description NOTICE - OTHER Name TESTER, KENT 2018-05-10 Answer to the ...

Court: Searcy County Circuit Court | **Date:** Sep 27, 2017

23. MASICK, CATHERINE JANE v. MASICK, TIMOTHY JAMES

... PETITION FOR NAME CHANGE 8198562 Type Petition Party: PLT 2008-08-25 ANSWER **8198563** Type Answer Party: DEFT 2008-08-25 DEPOSITIONS 8198564 Type Notice ...

Court: Roanoke County Circuit Court | **Date:** Aug 07, 2008

24. MOBILE AUTO GLASS REPAIR LLC, AS ASSIGNEE OF- FOR CHRIS PETIACH Vs. GEICO GENERAL INSURANCE COMPANY

... CONTINUED PENDING RE: 8198562 Details Note:: DISCOVERY 2013-03-19 RESET NOTICE MAILED **8198563** 2013-03-14 SMALL CLAIMS PRE TRIAL ICD (3:00 PM) (Judicial Officer HESSINGER, KATHLEEN ...

Court: Pinellas Circuit & County Court | **Date:** Feb 12, 2013

25. ORANGE CTY FLA et al v. BORDEN INC et al

... 5/04 RET: 6/08 1990-05-08 SUMMONS SHOW CAUSE/HEAR SVD 5/07 RET: 6/13 **8198563** SUMMONS SHOW CAUSE/HEAR SVD 5/07 RET: 6/13 1990-05-08 SUMMONS SHOW CAUSE/HEAR ...

Court: Orange Circuit & County Court | **Date:** Apr 20, 1990

26. ROBERT D JONES v. HOUSTON JONES ETAL

... 8198559 Type CONTINUED 00018 1996-06-10 AND REQUEST FOR ADMISSIONS DIRECTED TO **8198563** Type INTERROGATORIES TO 00019 1996-06-10 PLAINTIFF BY CORRIGAN HOLDINGS INC 8198567 ...

Court: Bexar County District Court | **Date:** May 24, 1996

27. RONALD WALLACE J

... 631142842 0055 1 I 1999-03-01T00:00:00 SAINT LOUIS SSN / ITIN: xxx-xx-0055 **8198563** STEVEN CHARLES BUBLITZ D DEBTOR LAW OFFICES OF STEVEN C BUBLITZ ...

Court: Missouri Eastern Bankruptcy Court | **Date:** Mar 01, 1999

28. Shawn D Pylant vs Jacqueline G Pylant

... 3-29-05 jmc Decl Serv Disc Inc & Expense 2005-04-27 File forwarded **8198563** Entry Time:10:24 AM Entry Comments:File forwarded to:Default Desk 4/28/05 eh...

Court: Fresno County Superior Court | **Date:** Mar 17, 2005

29. Stuart Dagg, et al v. Devlin Miller & McLean, PS, et al

... Description Appellants Reply brief Action Filed Participant DYRESON, JERRY T. 2010-02-03 **8198563** Description Oral Argument Setting Letter Action Sent by Court 2010-02-03 8198562 ...

Court: Appeals Division 3 | **Date:** Mar 03, 2009

30. Wagner, Gregory, et al. Vs. Wagner, Richard, et al.

... Greg Wagner 8198564 2008-11-04 Civil Deposit Posted Receipt: 401571 Date: 11/04/2008 **8198563** 2008-11-06 Civil Deposit Posted Receipt: 402222 Date: 11/06/2008 8198562 2008-11-19 Civil ...

Court: Fairbanks District and Superior Courts | **Date:** Jan 23, 2003

31. WAL MART 2131 Vs. COLLINS,CHRISTOPHER,F

... as to CHRISTOPHER F COLLINS 08/08/05 . Entered by 1125. **8198563** 2005-09-07 Affidavit stating CHRISTOPHER F COLLINS is not on active military ...

Court: Shawnee County District Court | **Date:** Jul 21, 2005

32. Yasera Escobar, On Behalf of Minor Petitioner vs. Frederick Bernadin Respondent

... 2015-09-22 Notice of Related Cases 8198565 2015-09-22 Affidavit of the Clerk **8198563** 2015-10-05 Proof of Service 8198557 Additional Text unserved 2015-10-06 Clerk's Certificate ...

Court: Broward Circuit & County Court | **Date:** Sep 22, 2015

Samsung, EX1019, p. 197

Administrative Materials (0)

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Intellectual Property (2) Sort by: Relevance

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BIBLE STUDIES FOR LIFE STUDENT LEADER GUIDE. [Published: 2015-09-15. Issue: vol. 3, no. 2, WINTER 2015-16]

U.S. Copyrights - Serials | Feb 17, 2016 | TX0008198563

... United States Copyright Office Reg. No. TX **8198563** BIBLE STUDIES FOR LIFE STUDENT LEADER GUIDE BIBLE STUDIES FOR LIFE ...

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BIBLE STUDIES FOR LIFE STUDENT LEADER GUIDE. [Published: 2015-09-15. Issue: vol. 3, no. 2, WINTER 2015-16]

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... United States Copyright Office Reg. No. TX **8198563** BIBLE STUDIES FOR LIFE STUDENT LEADER GUIDE BIBLE STUDIES FOR LIFE ...

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Cases (5) Sort by: Relevance

1.

Jones v. Westwick Apts., LLC

5th Circuit - US District Court Cases | United States District Court for the Southern District of Mississippi, Jackson Division | Jun 07, 2011 | 2011 U.S. Dist. LEXIS 155695

... of Mississippi, Jackson Division 2011 U.S. Dist. LEXIS 155695 2011 WL **8198563** June 7, 2011 , Decided June 7, 2011 , Filed For ...

2.

Jones v. Waffle House, Inc.

5th Circuit - US District Court Cases | United States District Court for the Southern District of Mississippi, Jackson Division | Aug 09, 2013 | 2013 U.S. Dist. LEXIS 112568

... No. 3:11-cv-125, 2011 U.S. Dist. LEXIS 155695 , 2011 WL **8198563** , at * 3 (S.D. Miss. June 7, 2011) (collecting cases). ...
... establishing liability." Jones , 2011 U.S. Dist. LEXIS 155695, 2011 WL **8198563** , at *3 . The title of site manager specifically suggests ...

3.

Rhymes v. UPS

5th Circuit - US District Court Cases | United States District Court for the Southern District of Mississippi, Northern Division | Mar 31, 2016 | 2016 U.S. Dist. LEXIS 43894

... No. 3:11-cv-125, 2011 U.S. Dist. LEXIS 155695 , 2011 WL **8198563** (remanding case because there was a possibility of recovery against in-state ...
... No. 3:11-cv-125, 2011 U.S. Dist. LEXIS 155695 , 2011 WL **8198563** , at * 3 (S.D. Miss. June 7, 2011) . In ...

4.

Littleton v. Dollar Gen. Corp.

5th Circuit - US District Court Cases | United States District Court for the Southern District of Mississippi, Western Division | Mar 26, 2013 | 2013 U.S. Dist. LEXIS 42351

... Apartments, LLC , 2011 U.S. Dist. LEXIS 155695 , 2011 WL **8198563** (S.D. Miss. June 7, 2011) , the plaintiff, who was shot ...

5.

Moore v. Kroger Co.

5th Circuit - US District Court Cases | United States District Court for the Southern District of Mississippi, Northern Division | Jun 25, 2018 | 2018 U.S. Dist. LEXIS 105600

... See Jones , 2011 U.S. Dist. LEXIS 155695 , 2011 WL **8198563** , at * 3 (finding apartment managers who failed to take ...

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News (5) Sort by: Relevance

1.

Page 137

Diarios Oficiais - Brazil | Oct 14, 2020 | EXECUTIVO CADERNO 1; Pg. 137 | 3163 words

... 8198404 9 - 42303242 - 40,00 MARIANE REGINA FERRETTI - **8198563** 0 - 8984416 - 27,50MAYLA ZATI SOUZA - 8200552 4 - ...

2.

US Patent Issued on June 12 for "Socket Structure with Duplex Electrical Connection" (Taiwanese Inventor)

US Fed News | Jun 16, 2012 | 249 words

... 2010, under Application No. 12/759,408. For further information please visit: http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO2&Sect2=HITOFF&p=1&u=%2Fnetahtml%2FPTO%2Fsearch-bool.html&r=1&f=G&l=50&co1=AND&d=PTXT&s1= **8198563**&OS=**8198563**&RS=**8198563** For any query with respect to this article or any other ...

... ALEXANDRIA , Va. , June 16 -- United States Patent no. **8,198,563** , issued on June 12. "Socket Structure with Duplex Electrical Connection" ...

3.

Page 256

Diarios Oficiais - Brazil | Sep 22, 2020 | EXECUTIVO CADERNO 1; Pg. 256 | 3210 words

... 017 - 8 horas MARIANE REGINA FERRETTI - 8984416 - **8198563** 0 - 026 - 0106 - 032 - 8h30min MARIANE RODRIGUES ...

4.

GearWrench Extends Its Electronic Torque Wrench Line

Newstex Blogs | Jan 15, 2016 | 597 words

... [3]<nl/> [1]: http://ctt.marketwire.com/?release=1239080... **8198563**...e=1...=http%3a%2f%2fwww.gearwrench.com%2f [2]: jleckstrom@rosecomm.com [3]: ...

5.

Bäcker Wiedemann Bäckerei

GlobalAdSource (German) | May 18, 2009 | 32 words

... Bäcker Wiedemann Bäckerei ID **8198563** Price $12.0 USD Media Type Print Country Germany Source BERLINER MORGENPOST ...

Content type: News

Terms: 8198563 or 8,198,563

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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
17/020,359	09/14/2020	3992	2830	10186PAT-1-REI	45	3

CONFIRMATION NO. 8163

CORRECTED FILING RECEIPT

22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

OC000000120604886

Date Mailed: 10/14/2020

Receipt is acknowledged of this reissue 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)

Chou Hsien Tsai, New Taipei City, TAIWAN;

Applicant(s)

KIWI CONNECTION, LLC, Waco, TX, Assignee (with 37 CFR 1.172 Interest);

Power of Attorney: The patent practitioners associated with Customer Number 22442

Domestic Priority data as claimed by applicant

This application is a REI of 12/759,408 04/13/2010 PAT 8198563

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
TAIWAN 099100847 01/13/2010
TAIWAN 098210021 06/05/2009
TAIWAN 098117405 05/26/2009
TAIWAN 098112573 04/15/2009

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The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/020,359**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Preliminary Class

439

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

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: Chou Hsien Tsai	)	Group Art Unit: 3992
Application No.: 17/020,359	)	Examiner: PATEL, HETUL B
Filed: September 14, 2020	)	Confirmation No.: 8163
Atty. File No.: 10186PAT-1-REI	)	

For: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

REQUEST FOR CORRECTED FILING RECEIPT

Dear Commissioner:

The Filing Receipt dated September 16, 2020 in the above-referenced patent application contains the following errors:

In the section entitled **"Foreign Applications"**, the correction should read as follows:

TAIWAN 099100847 01/13/2010
TAIWAN 098210021 06/05/2009
TAIWAN 098117405 05/26/2009
TAIWAN 098112573 ~~04/16/2009~~ 04/15/2009

The Application Data Sheet filed September 14, 2020 contains the correct Foreign Application information. For your reference, a copy of the Application Data Sheet and the marked-up Filing Receipt is submitted herewith.

Samsung, EX1019, p. 207

Applicants believe that no fees are due for requesting this correction. However, the Commissioner is hereby authorized to charge any underpayment, or credit any overpayment, to Deposit Account No. 19-1970, in connection with this request.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: October 10, 2020

By: /Jason H. Vick/

Jason H. Vick
Reg. No. 45,285
1560 Broadway, Suite 1200
Denver, Colorado 80202
Telephone: 303-863-9700
jvick@sheridanross.com

Samsung, EX1019, p. 208

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/020,359	09/14/2020	2833	2830	10186PAT-1-REI	45	3

CONFIRMATION NO. 8163

FILING RECEIPT

22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Date Mailed: 09/16/2020

Receipt is acknowledged of this reissue 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)

Chou Hsien Tsai, New Taipei City, TAIWAN;

Applicant(s)

KIWI CONNECTION, LLC, Waco, TX, Assignee (with 37 CFR 1.172 Interest);

Power of Attorney: The patent practitioners associated with Customer Number 22442

Domestic Priority data as claimed by applicant

This application is a REI of 12/759,408 04/13/2010 PAT 8198563

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
TAIWAN 099100847 01/13/2010
TAIWAN 098210021 06/05/2009
TAIWAN 098117405 05/26/2009
TAIWAN 098112573 ~~04/16/2009~~ **04/15/2009**

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.

Samsung, EX1019, p. 209

If Required, Foreign Filing License Granted: 09/15/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/020,359**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **
Title

SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Preliminary Class

439

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).

Samsung, EX1019, p. 210

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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
	Chou Hsien		Tsai	

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

City	New Taipei City	Country of Residence [i]	TW

Mailing Address of Inventor:

Address 1	8F.-2, No. 1, Wuquan 1st Rd.
Address 2	Xinzhuang Dist.

City	New Taipei City	State/Province	
Postal Code	242	**Country** [i]	TW

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

Correspondence Information:

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	22442		
Email Address	jvick@sheridanross.com	Add Email	Remove Email

Application Information:

Title of the Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION		
Attorney Docket Number	10186PAT-1-REI	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	29	**Suggested Figure for Publication (if any)**	

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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)
Customer Number	22442		

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	Patented		Remove		
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	reissued of	12/759408	2010-04-13	8198563	2012-06-12

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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)
099100847	TW	2010-01-13	
			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
098210021	TW	2009-06-05	
			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
098117405	TW	2009-05-26	
			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
098112573	TW	2009-04-15	

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

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	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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

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	KIWI CONNECTION, LLC

Mailing Address Information For Applicant:

Address 1	7215 Bosque Blvd		
Address 2	Suite a-#102		
City	Waco	**State/Province**	TX
Country	US	Postal Code	76710
Phone Number		Fax Number	
Email Address			

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

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.

PTO/AIA/14 (02-18)
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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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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.

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

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Signature:

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	/Jason H. Vick/			Date (YYYY-MM-DD)	2020-09-14
First Name	Jason H.	Last Name	Vick	Registration Number	45285

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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.

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EFS ID:	40812187
Application Number:	17020359
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First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
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Attorney Docket Number:	10186PAT-1-REI
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	Request_for_Corrected_Filing_Receipt_2nd.pdf	4122215 21e981e649612831f032e16b387b559f431d5cbc	no	13

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Total Files Size (in bytes):	4122215

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New International Application Filed with the USPTO as a Receiving Office

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
(Use as many sheets as necessary)				Art Unit	2833
				Examiner Name	
Sheet	1	of	2	Attorney Docket Number	10186PAT-1-REI

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	6530793	03/11/2003	Eichhorn et al.	
	2	6964582	11/15/2005	Zhuang et al.	
	3	7094089	08/22/2006	Andre et al.	
	4	7275940	10/02/2007	Chen	
	5	7458825	12/02/2008	Atsmon et al.	
	6	2004/0023560	02/05/2004	Swoboda	

FOREIGN PATENT DOCUMENTS						
Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]; Number[4]; Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
	7	CN 1370343	09/18/2002	BRAUN GMBH		(with English abstract)
	8	CN 1969428	05/23/2007	WALLETEX MICROELECTRONICS LTD		(with English abstract)
	9	CN 2682660	03/02/2005	FOXCONN KUNSHAN COMP INTERFACE		(with English abstract)
	10	CN 2733636	10/12/2005	YAO LIHE		(with English abstract)
	11	CN 2791923	06/28/2006	ANGUO INTERNAT SCIENCE TECHNOL		(with English abstract)
	12	CN 201478495	05/19/2010	INVENTEC CORP		(with English abstract)
	13	CN 201594633	09/29/2010	HEMAO DONGGUAN ELECTRONIC & TECHNOLOGIES CO LTD		(with English abstract)
	14	CN 201717389	01/19/2011	ZTE CORP		(with English abstract)
	15	WO 2008/065659	06/05/2008	WALLETEX MICROELECTRONICS LTD		

Examiner Signature		Date Considered	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT *(Use as many sheets as necessary)*				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
				Art Unit	2833
				Examiner Name	
Sheet	2	of	2	Attorney Docket Number	10186PAT-1-REI

NON-PATENT LITERATURE DOCUMENTS		
Examiner Initials*	Cite No.[1]	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, page(s), volume-issue number(s), publisher, city and/or country where published.

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Electronic Acknowledgement Receipt

EFS ID:	40603796
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International Application Number:	
Confirmation Number:	8163
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10		10186PAT-1-REI_IDS_02.pdf	1423027 46f9225c43c5fc761858eab3799c729234a62da4	yes	5

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	Document Description	**Start**	**End**
	Transmittal Letter	1	3
	Information Disclosure Statement (IDS) Form (SB08)	4	5

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New Applications Under 35 U.S.C. 111
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Espacenet

CN1370343A Multipolar connector for low-voltage devices

Applicants: BRAUN GMBH [DE]

Inventors: EICHHORN REINHOLD [DE],HARMS MICHAEL [DE],HOTTENROTT SEBASTIAN [DE]

Classifications:

IPC ***H01R13/02; H01R13/642; H01R24/00; H01R24/60; H01R29/00;*** (IPC1-7): H01R24/00; H01R29/00;

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Multipolar connector for low-voltage devices

Abstract

This invention involves a kind of multipolar connector, is used for connecting low-voltage to the personal electric apparatus (E), have one stock one socket plug (6) of (5) and have contact member that can be contacted while being pluggable (1 to 4, 10, 20, 30, 40) the voltage used for detachable polarity is transmitted, socket (5) and plug (6) constitute can whom (S) turn over large around one symmetry axis to at least another on position from one on position Body of section of gon (from M1 to M12). Consist of a at least one first utmost point (+) and one of second utmost points each at it is at each section bodies polygonal (from M1 to M12) (-) contact member (1 to 4, 10, 20, 30, 40). There is the first utmost point in the statement (+) And the second utmost point (-)Contact member in alternative order along each rotatory direction (U) arrange in section the surfaces of bodies polygonal of section body (from M1 to M12)s polygonal. On the body of polygonal section The at least one contact member that has (from M1 to M12) has relatively large contact surfaces by forming the large-area and keeping in touch with the contact member (1 to 4, 10, 20, 30, 40) jointing.

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罗兰·乌尔曼 于尔根·沃尔夫

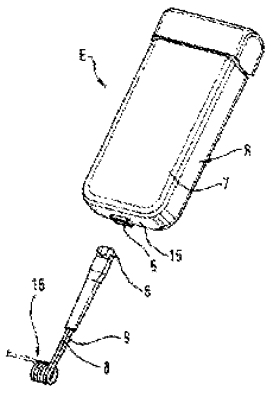
[74]专利代理机构 中原信达知识产权代理有限责任公司
代理人 朱登河 顾红霞

权利要求书5页 说明书12页 附图页数4页

[54]发明名称 低压电器的多极接插组件

[57]摘要

本发明涉及一种多极接插组件，用于向个人电器(E)连接低电压，具有一个可插入进一个插座(5)的插头(6)并且具有可接触的接触元件(1至4、10、20、30、40)用于可分极性的电压传输，插座(5)和插头(6)构成为可以从一个插入位置向至少另一个插入位置绕一个对称轴(S)翻转的多边形断面体(M1至M12)。在每个多边形断面体(M1至M12)上各设有至少一个第一极(+)和一个第二极(-)的接触元件(1至4、10、20、30、40)。所述有第一极(+)和第二极(-)的接触元件以交替的顺序沿一个转动的方向(U)安排在多边形断面体(M1至M12)的多边形断面体的面上。在多边形断面体(M1至M12)的至少一个上的接触元件有相对大的接触面以与接合的接触元件(1至4、10、20、30、40)形成大面积接触。



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权 利 要 求 书

1. 一种多极接插组件，用于向个人电器（E）连接低电压，具有一个可插入进一个插座（5）的插头（6）并且具有可接触的接触元件（1 至 4、10、20、30、40）用于可分极性的电压传输，其特征在于，插座（5）和插头（6）构成为可以从一个插入位置向至少另一个插入位置绕一个对称轴（S）翻转的多边形断面体（M1 至 M12），在每个多边形断面体（M1 至 M12）上各设有至少一个第一极（＋）和一个第二极（－）的接触元件（1 至 4、10、20、30、40），第一极（＋）和第二极（－）的接触元件以交替的顺序沿一个转动的方向（U）安排在多边形断面体（M1 至 M12）的多边形断面体的面上，并且在多边形断面体（M1 至 M12）的至少一个上的接触元件有相对大的接触面以与接合的接触元件（1 至 4、10、20、30、40）形成大面积接触。

2. 权利要求 1 的前序部分所述的接插组件，其特征在于，插座（5）和插头（6）构成为可以从一个插入位置向至少另一个插入位置绕一个对称轴（S）翻转的多边形断面体（M1、M2），在每个多边形断面体（M1、M2）上各设有一个第一极（＋）和一个第二极（－）的接触元件（1、2、10、20），接触元件（1、2、10、20）的第一极（＋）和第二极（－）以交替的顺序安排在多边形断面体（M1、M2）之一上，并且在相邻的多边形断面体（M1、M2）上有数量为（n）的第一极（＋）的接触元件，或者数量为（n－1）的第二极（－）的接触元件元件（1、2、10、20）。

3. 权利要求 1 的前序部分所述的接插组件，其特征在于，至少一个接触元件（1 至 4）设在插头（6）的每个壁（51 至 54、59）上。

4. 权利要求 1 的前序部分所述的接插组件，其特征在于，至少一个接触元件（10、20、30、40）设在插座（5）的每个壁（55 至 58、

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60）上。

5. 权利要求 1 的前序部分所述的接插组件，其特征在于，至少两个第一极（＋）的接触元件（1）以彼此对立的关系设在插头（6）的多边形断面体（M1、M3、M5、M7）上。

6. 权利要求 1 的前序部分所述的接插组件，其特征在于，至少两个第二极（－）的接触元件（2）以彼此对立的关系设在插头（6）的多边形断面体（M1、M3、M5、M7）上。

7. 权利要求 1 的前序部分所述的接插组件，其特征在于，至少两个第一极（＋）的接触元件（1）以彼此对立的关系设在插座（5）的多边形断面体（M2、M4、M6、M8）上。

8. 权利要求 1 的前序部分所述的接插组件，其特征在于，至少两个第二极（－）的接触元件（2）以彼此对立的关系设在插座（5）的多边形断面体（M2、M4、M6、M8）上。

9. 以上权利要求任何之一所述的接插组件，其特征在于，第一极（＋）和第二极（－）的接触元件（1 至 4、10、20、30、40）设在插头（6）和插座（5）的相对立和／或相邻的壁上。

10. 以上权利要求任何之一所述的接插组件，其特征在于，接触元件（1、2、3、4）设在插头（6）的多边形断面体（M1、M3、M5、M7、M9、M11）的至少两个壁（51 至 54）上。

11. 以上权利要求任何之一所述的接插组件，其特征在于，接触元件（10、20、30、40）设在插座（5）的多边形断面体（M2、M4、M6、M8、M10、M12）的至少两个壁（57 至 58）上。

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12. 以上权利要求任何之一所述的接插组件，其特征在于，第一极（＋）的两个接触元件（10）和第二极（－）的一个接触元件（20）设在多边形断面体（M2）之一上，并且第一极（＋）的两个接触元件（1）和第二极（－）的两个接触元件（2）设在用于与之耦连的多边形断面体（M1）上。

13. 以上权利要求任何之一所述的接插组件，其特征在于，至少一个有一个第一极（＋）和一个第二极（－）的接触元件（1、2）设在第一壁（51）上，并且在插头（6）和插座（5）的其它壁（52、53、54）上的接触元件（1、2）与设在第一壁（51）上的接触元件（1、2）以相同的极性次序安排。

14. 以上权利要求任何之一所述的接插组件，其特征在于，插头（6）和插座（5）的多边形断面体由具有至少两个不同极性的接触元件的可翻转的四角断面体形成，并且第一极（＋）和第二极（－）的接触元件以互相中心对称的关系设在插头（6）和插座（5）的壁上。

15. 以上权利要求任何之一所述的接插组件，其特征在于，插头（6）和插座（5）的多边形体断面体由可翻转的矩形断面体形成。

16. 以上权利要求任何之一所述的接插组件，其特征在于，插头（6）和插座（5）的多边形体断面体由可翻转的正方形断面体形成。

17. 以上权利要求任何之一所述的接插组件，其特征在于，插头（6）和插座（5）的多边形体断面体由可翻转的三角断面体形成。

18. 以上权利要求任何之一所述的接插组件，其特征在于，插头（6）和插座（5）的多边形体断面体由可翻转的五边形或六边形断面体形成。

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19. 以上权利要求任何之一所述的接插组件，其特征在于，插头（6）的多边形体断面体至少有两个相互平行伸展的外壁，和其它连接上述外壁的合适形状的外壁以形成一个封闭体。

20. 以上权利要求任何之一所述的接插组件，其特征在于，插座（5）的多边形体断面体至少有两个相互平行伸展的外壁，和其它连接上述外壁的合适形状的外壁以形成一个封闭体。

21. 以上权利要求任何之一所述的接插组件，其特征在于，接触元件构成为接触板。

22. 以上权利要求任何之一所述的接插组件，其特征在于，至少一个接触元件基本上是U字形构形的。

23. 以上权利要求任何之一所述的接插组件，其特征在于，至少一个接触元件基本上是L字形构形的。

24. 以上权利要求任何之一所述的接插组件，其特征在于，在插头（6）和/或插座（5）的多边形体断面体设至少两个不同极性的U字形接触元件。

25. 以上权利要求任何之一所述的接插组件，其特征在于，插头/插座的多边形体断面体设至少两个不同极性的L字形接触元件。

26. 以上权利要求任何之一所述的接插组件，其特征在于，插头/插座的多边形体断面体至少一个壁是要弹簧加载的。

27. 权利要求 18 所述的接插组件，其特征在于，所述弹簧加载的壁装备有一个棘轮钩。

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28. 权利要求 18 或 19 所述的接插组件，其特征在于，插座或插头的多边形体断面体至少两个相对壁是要用一个薄膜铰链弹簧加载的。

29. 权利要求 18 至 20 任何之一所述的接插组件，其特征在于，用于弹簧加载的壁适于用弹簧元件作用于其上。

30. 以上权利要求任何之一所述的接插组件，其特征在于，插头的多边形体断面体是一个电线的部分。

31. 以上权利要求任何之一所述的接插组件，其特征在于，插头的多边形体断面体是一个电器的部分。

32. 以上权利要求任何之一所述的接插组件，其特征在于，插座的多边形体断面体是一个电线的部分。

33. 以上权利要求任何之一所述的接插组件，其特征在于，插座的多边形体断面体是一个电器的部分。

34. 以上权利要求任何之一所述的接插组件，其特征在于，插头和插座的多边形体断面体是用于耦连在一起的两个电线的部分。

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说　明　书

低压电器的多极接插组件

本发明涉及一种权利要求 1 的前序部分所述类型的多极接插组件。

开头所指类型的多极接插组件由德国标准“DIN45323，1982 年 10 月公布”所公知。插头基本上含有一个固定在一个绝缘体中的接触套筒，在插座与插头耦连时这个套筒由插座的一个弯曲的V字形接触弹簧接合。接触套筒的圆形结构和接触弹簧的V字形结构在这两个部件的接合区域内产生一个以点为基础的接触，其结果是无法保证蓄电池充电和／或所连接的电器运转所需的较大电流的无损耗传输。

本发明的一个目的是改善开头所述的多极接插组件。

根据本发明此目的由权利要求 1 所确定的特征实现。

达到本发明的目的的另一个方案由权利要求 2 所给出的特征说明。

本发明的一个基本优点是，通过把插头和插座构成为可翻转的多边形断面体，形成可以设有一或多个有较大的接触面积的接触元件的壁面，用于与任何与之接合的接触元件进行大面积接触。通过在第一极的接触元件与同极性的接触元件之间的大面积接触，以及在第二极的接触元件与同极性的接触元件之间的大面积接触，可以保证大体上无损耗地传输相对大的电流，尽管所述的多极接插组件的尺寸相对地小。接触元件表面的相对大的扩展区域保证了在它与与之接合的接触元件的接触面之间的大面积接触，不论后者是平面的还是凸的还是角形的构形。把接合接触面做得适应于受接触弹簧的弹力的影响，可以

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保证在相对大的接触面与一个例如由单翼或多翼接触弹簧形成的接触元件之间的大面积接触。设在多边形断面体上的接触元件的正确的极之间的接触，通过适当地形成插座和插头的可互相配合的多边形断面体由插头和插座相对一个公共对称轴的可翻转性保证。通过相互正确接合而匹配的插头和插座的多边形断面体还保证插头和插座可以容易而且简单地连接和分开。

权利要求所提出的方案的一个基本优点是，不损害从电源，例如变压器，向电器的充电电路传输低电压地，有可能对多边形断面体之一，例如插座，设置一个第一极（＋）或者第二极（－）的小的接触元件而不对电压传输有任何损害。

上述的两个方案的每个都能保证在所设的接触元件之间有足够的大面积接触，以及保证同极性接触元件的可靠分配，即把第一极（＋）分配给相邻的第一极（＋）并且把第二极（－）分配给相邻的第二极（－），不论是在把插头插入插座时还是翻转插头从一个插入的位置转向到至少另一个插入位置。根据本发明的这两个方案允许有多种多样的不同实施例，每个都可以有利地实际应用。例如，一方面插头和插座的可互相配合的多边形断面体可以有不同的形状，另一方面插头和插座的多边形断面体可以根据需要设有几个接触元件，只要所述的带有边缘的多边形断面体可以通过正确接合而相互插在一起。

本发明的对象优选地适用于个人用电器，这些应用常常需要使用者实现从电源，例如低压变压器，向电器的低电压传输，这种情况下重要的是使用者能够进行插头插座连接，确保电源以简单的方式具有相关连接中的正确极性，而不必注意怎样达到正确的极性连接。这种类型的电器具体有剃须刀、口腔保健器、电话，特别是移动电话、装有充电电池的手持电器等等。

本发明的一个优选实施例的特征在于至少一个接触元件设在插头

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的每个壁上。

在该实施例的另一个方面，至少一个接触元件设在插座的每个壁上。

本发明的一个可经济地制造的，非常简单的实施例的特征在于，第一极的至少两个接触元件以相对的关系设在插头的多边形体断面体上。在这个实施例的另一个方面，第二电极的两个接触元件以相对的关系设在插头的多边形体断面体上。为了适应这个实施例，第一极的至少两个接触元件以相对的关系设在插座的多边形体断面体上，而第二电极的至少两个接触元件以相对的关系设在插座的多边形体断面体上。

根据本发明的另一个优选实施例，第一极和第二极的接触元件设在插头和插座的相对和／或相邻的壁上。

对于相对简单和低成本的接插组件，接触元件设在插头的多边形体断面体上的至少两个壁上就够了。为了适应这种实施例，接触元件设在插座的多边形体断面体上的至少两个壁上。

与由插头和插座可互相配合的多边形体断面体的强制接合元件形成的接插组件相联系，正确的接触由设在插头和插座上两个第一极性接触元件和第二极性的一个接触元件，并且在可耦连的多边形断面体上设有两个第一极性接触元件和第二极性的一个接触元件来得到保证。

本发明的一个优选的方案特征在于至少一个带有一个第一极性和一个第二极性的接触元件设在第一壁上，而在插头和插座的其它壁上的接触元件以与设在第一壁上的接触元件的极性相同的次序安排。

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本发明的另一个优选的实施例特征在于插头和插座的多边形体断面体由可翻转的带有至少两个不同极性的接触元件的四边形断面体形成，其中第一极（＋）和第二极（－）的接触元件以中心互相对称的关系设在插头和插座的壁上。

根据本发明的另一个优选的实施例插头和插座多边形体断面体由可翻转的矩形断面体形成。

根据本发明的一个优选的实施例插头和插座多边形体断面体由可翻转的正方形断面体形成。

根据本发明的又一个实施例插头和插座多边形体断面体由可翻转的三角断面体形成。

根据本发明的再一个实施例插头和插座多边形体断面体由可翻转的六边形断面体形成。

根据本发明的一个优选的实施例插头和插座多边形体断面体至少有两个相互平行伸展的外壁，和其它连接上述外壁的适合形状的外壁以形成一个封闭体。

根据本发明的一个优选实施例插座至少有两个相互平行伸展的内壁，和其它连接上述内壁的适合形状的壁以形成一个封闭体。

根据本发明的一个优选实施例接触元件构成为接触板。

根据本发明的一个优选实施例至少一个接触元件基本上是U字形构形的。

根据本发明的一个优选实施例至少一个接触元件基本上是L字形

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构形的。

根据本发明的一个优选实施例提出在插头和/或插座的多边形体断面体设至少两个不同极性的U字形接触元件。

根据本发明的一个优选实施例提出在插头和/或插座的多边形体断面体设至少两个不同极性的L字形接触元件。

根据本发明的一个优选实施例提出插头和/或插座的多边形体断面体至少一个壁是要弹簧加载的。

根据本发明的一个优选实施例提出所述弹簧加载的壁装备有一个棘轮钩。

根据本发明的一个优选实施例提出在插座或插头的多边形体断面体至少两个相对壁是要用一个薄膜铰链弹簧加载的。

根据本发明的一个优选实施例提出用于弹簧加载的壁适于用弹簧元件作用于其上。

根据本发明的一个优选实施例提出插头的多边形体断面体是电线的一部分。

根据本发明的一个优选实施例提出插头的多边形体断面体是电器的一部分。

根据本发明的一个优选实施例提出插座的多边形体断面体是电线的一部分。

根据本发明的一个优选实施例提出插座的多边形体断面体是电器

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的一部分。

根据本发明的一个优选实施例提出插头和插座的多边形体断面体是用于耦连在一起的两个电线的部分。

从下面的说明和示出某些优选实施例的附图中可以清楚本发明的其它优点和细节。

图 1 是一个电器 E，具体地一个剃须装置 R 的透视图；

图 2 是一个电源适配器的透视图，所述适配器有一个带有与剃须装置 R 的插座耦连用的插头的电线；

图 3 是一个在连接状态的插座和插头的透视图；

图 4 是一个插头和一个插座以及固定装置的分解图；

图 5 是一个插座和一个固定装置的全部部件的分解图；

图 6 是插头的全部部件的分解图；

图 6a 形成大表积接合的两个接触元件的视图；以及

图 7 至 17 是互相配合的插头和插座的不同实施例的视图，具体示出插头和插座的多边形断面体和在互相配合的多边形断面体之间各种接触的形状设计。

图 1 示出一个剃须装置 R 形式的电器 E 的透视图。在剃须装置 R 的壳 7 的壳底 15 中设有一个连接电线 16 的插头 6 的插座 5。

图 2 示出一个电源适配器 A 的透视图，所述适配器 A 有一个带有与剃须装置 R 的插座 5 耦连用的插头 6 的电线 16。两个用于连接到电源的插头销 13 和 14 设在电源适配器 A 上。电线 16 可以固定在电源适配器 A 的适配器壳 12 中或者可以插入其中。电线 16 用于有极性地传输电压。为此目的本实施例设有一个电流导线 8 用于向第一极（＋）的至少一个接触元件传输电压，并且设有一个电流导线 9 用于向第二极（－）的至少一个接触元件传输电压。

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图 3 示出一个在连接状态的插座 5 和插头 6 的透视图。参见图 1，电线 16 的电流导线 8，连通到插头 6 的第一极（＋）的接触元件 1，而电流导线 9 通到插头 6 的第二极（＋）的接触元件 2。与接触元件 1 进行接触的插座 5 的接触元件 10 与一个进一步延伸的电流导线 8 导电连接，而与接触元件 2 进行接触的插座 5 的接触元件 20 类似地与一个进一步延伸的电流导线 9 导电连接。这些进一步延伸的导线 8 和 9 通到一个电器 E，例如图 1 的剃须装置的电传动或充电电路。参见图 5，插座 5 的基本上为矩形的壳 35 部分地由一个固定装置 37 和一个弹簧元件 38 包绕，用于持定牢固地固定陷于插座壳 35 内的插头 6。

图 4 示出一个插头 5 和一个插座 6 的分解图。参见图 6，构成为多边形断面体 M1 的插头 6 有一个基本上为 U 字形的接触元件 1 和一个基本上为 U 字形的接触元件 2，从而在插头 6 的插头体 36 的每个侧面形成电压传输用的相对大的接触面。插座 5 的插座壳 35 与图 3 中所示相比转过了 180 度角。插座壳 35 有一个内部空间，其壁 55、56、57 和 58 形成一个空心的多边形断面体 M2。空心的多边形断面体 M2 的内径选择得使之能够保证可插入的插头 6 的接触元件 1 和 2 与插座 5 的插座壳 35 中的接触元件 10 和 20 接合，所述插头 6 构成为多边形断面体 M1。

图 5 示出插座 5 和部分地包绕插座壳 35 的固定装置 37 的各种部件的分解图。在插座壳的相互对立的壁面 55、56、57、和 58 中设有孔 41 至 44 用于容纳元件 10 和 20。在图 5 的实施例中接触元件 10 有 U 形的构形并且在组装了的状态中包括突入到 U 形内并伸过插座壳的壁面 55 和 56 的孔 41 和 42 的接触弹簧。在接触元件 10 上设有一个接触指。在插座壳 35 的侧壁 57 和 58 的孔 42 和 43 起容纳基本上为 L 形的接触元件 20 的作用，接触元件 20 类似地有一个向内弯的多翼接触弹簧和一个用于连接电流导线 9 的接触指。在插头 6 与插座 5 耦连的状态下，弹性的接触元件 20 与插头 6 的 U 字形接触元件 2 的端

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面接合。还可以用两个L字形的接触元件 20 结合形成一个U字形的接触元件。通过一个U字形的接触元件可以得到两个可接触的面，这两个可接触的面可以提供为插头 6 和/或插座 5 的第一极（＋）或第二极（－）的接触面。

固定装置 37 基本上包含一个后壁 46 和两个安排为彼此相向运动的端壁 47 和 48，及一个设在后壁 46 上与之成直角的支承壁 49。端壁 48 和 / 或端壁 47 的可移动性可以通过一个机械关节保证也可以借助于一个薄膜铰链把端壁 47 和 48 形成在后壁上保证。当接触元件 10 和 20 成套的插座壳 35 与固定装置 37 组装起来时，端壁 47 和 48 被一个U字形的弹簧元件 38 的弹簧支腿 26 和 27 迫向插座壳 35 的内部空间的方向。为了改善引导和把弹簧元件 38 保持在装置 37 上，在端壁 47 和 48 上设有凹陷 24 和 25 以容纳弹簧支腿 26 和 27。

图 6 示出插头 6 的构成为一个多边形断面 M1 的插头体 36 的透视图，在其侧壁上设有凹陷以容纳一个基本上为U字形的接触元件 1 和一个基本上为U字形的接触元件 2。彼此相对伸展的插头体 36 的相对窄的末端和与它们接合的 U 字形接触元件 2 的相应支腿阶梯形地凹陷以使插头 6 的阶梯形肩台提供一种与设在固定装置 37 的端壁 47 和 48 上的夹持片 28 和 29 配合的销锁作用，固定装置 37 一方面把插头 6 牢靠地卡在插座 5 内，另一方面使使用者方便地向插座 5 插入和从插座 5 取出插头 6。

图 6a 示出与一个刚性的接触元件 2 接合的一个弹性接触元件 20。利用接触元件 20 的弹性特性和伴随顺性在接触元件 20 和接触元件 2 之间得到了相对大面积的接合。参见图 5，如果接触元件 20 具有一种带翼片的结构，按照翼片数量在接触元件 20 与接触元件 2 之间形成几个大面积接触。

图 7 至 17 是互相配合的插头 6 和插座 5 的不同实施例的视图。

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插头 6 的插头体 36 构成为一个多边形断面体 M1、M3、M5、M7、M9、M11，在其壁面 51、52、53、54 和 59 上设有不同数量的有第一极（＋）也有第二极（－）的接触元件 1 到 4，从而第一极（＋）和第二极（－）的接触元件以交替顺序沿一个转动方向 U 围绕对称轴 S 安排在相应的多边形断面体的面上。与插头 6 的各个多边形断面体 M1、M3、M5、M7、M9、M11 关联的是一个插座 5，其由壁面 51 至 60 形成的内部空间有多边形断面体 M2、M4、M6、M8、M10、M12 的形状，从而保证由强制接合插接在一起，也保证了图 7 至 17 中每个实施例中插头 6 和插座 5 的翻转。

在所述的多边形断面体 M1 至 M12 上设有第一极（＋）和第二极（－）的接触元件 1 至 4、10、20、30、40，这样第一极（＋）和第二极（－）的接触元件以交替顺序，即例如，极（＋）、极（－）、极（＋）、极（－）地，沿一个转动方向 U 围绕对称轴 S 安排在多边形断面体 M1 至 M12 的多边形断面体的面上。在图 7 至 17 所示的实施例中，接触元件 1 和接触元件 3 有正极（＋），而接触元件 2 和接触元件 4 有负极（－）。接触元件在插座 5 和插头 6 的多边形断面体 M1 至 M12 的多边形断面体的面上的这种安排，与插头 6 和插座 5 由于强制接合的的互相配合结合，保证了把插头插入插座中时以及把它从一个插入位置翻转至至少另一个插入位置时都有正确极性的接触。

在图 7 至 15 的实施例中第一极（＋）的极性分配给接触元件 1、3、10 和 30，而第二极（－）的极性分配给接触元件 2、4、20 和 40。另外，具有第一极（＋）的极性的接触元件和具有第二极（－）的极性的接触元件，以相互中心对称的关系安排在插头 6 的多边形断面体 M1、M3、M5、M7 的壁面和多边形断面体 M2、M4、M6、M8 的多边形断面体的面上。这个规律的唯一例外是图 8 实施例的多边形断面体 M2，它只在多边形断面体的一个窄侧有一个接触元件 20。

图 7 示出插头 6 和插座 5，其可翻转的多边形断面体 M1 和 M2

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构成为矩形断面。在多边形断面体 M1 的宽侧设有一个第一极（＋）的相应接触元件 1，在多边形断面体 M2 的相对的窄侧上设有一个第二极（－）的相应接触元件 2。匹配到以合形配合多边形断面体 M1 并且由壁面 55 至 58 确定的插座 5 的多边形断面体 M2 在其每个纵侧上有第一极（＋）的相应的接触元件 10，而在彼此反向伸展的窄侧上有第二极（－）的相应的接触元件，从而，保证了在这两个多边形断面体 M1 和 M2 插在一起时以及把多边形断面体 M1 在插座 5 的多边形断面体 M2 内翻转时在第一极（＋）的接触元件 1、10 与第二极（－）的接触元件 2、20 之间都有正确极性的接触。

图 8 的实施例示出一个多边形断面体 M1，其断面和与接触元件 1、2 的接触与对图 7 的多边形断面体 M1 的实施例一致。插座 5 的多边形断面体 M2 大体上与图 7 的 M2 实施例一致。然而，与此实施不同，在多边形断面体 M2 上没有设一个接触元件 20。但是还是能保证与插头 6 的多边形断面体的接触元件正确极性的接触。

图 9 示出一个结合图 7 说明的多边形断面体 M1 的一个实施例和插头 6 的多边形断面体 M2 一个实施例，此插头 6 的多边形断面体 M2 上，与图 7 不同，第一极（＋）的接触元件和第二极（－）的接触元件以相互中心对称的关系安排在两个壁面 51 和 52 上。同样的安排也设在插座 5 的多边形断面体 M2 上，从而当多边形断面体 M1 与多边形断面体 M2 耦连时，保证在有第一极（＋）极性的接触元件之间的正确接触和在有第二极（－）极性的接触元件之间的正确接触。

图 10 示出多边形断面体 M1 和多边形断面体 M2 之间接触的另一个实施例，在每个纵侧上设有另一个有第一极（＋）极性的接触元件 3，并且在多边形断面体 M2 上设有另一个有第二极（－）极性的接触元件 30。

图 11 的接触元件的安排与图 10 的实施例不同处在于，在多边形

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断面体 M1 的窄侧的壁面 53、54 上设有另一个有第二极（一）极性的接触元件 4，而在多边形断面体 M2 的窄侧的壁面 57、58 上设有一个有第二极（一）极性的接触元件 40。当插头 6 与插座 5 在耦连状态时正确极性的接触的保证在于，有第一极（＋）极性的接触元件和有第二极（一）极性的接触元件以交替的顺序沿转动方向 U 安排在多边形断面体 M1，即 1、2、3、/4/1、2、3/4一和 M2一即 10、20、30/40/10、20、30/40 的多边形断面体的面上。

图 12 的实施例示出基本上为矩形结构的多边形断面体 M3 和 M4，多边形断面体 M3 的窄侧的壁面 53、54 是凹的，而多边形断面体 M4 的窄侧的壁面 57、58 是凸的。在多边形断面体 M3 和 M4 之间的接触与图 7 所示的多边形断面体 M1 和 M2 之间的接触一致。图 13 的多边形断面体 M5 和 M6 的实施例与图 12 所示的多边形断面体 M3 和 M4 的区别仅在于基本上为矩形的多边形断面体 M5 的窄侧的壁面 53、54 是凸的，而多边形断面体 M6 的窄侧的壁面 57、58 是凹的。

在图 14 和 15 的实施例中插头 6 的多边形断面体 M7 和插座 5 的多边形断面体 M8 由可翻转的正方形断面体构成。在图 14 的实施例中在每个壁面 51 至 54 和 55 至 58 上各设有一个有第一极（＋）极性的接触元件 1、10 和有第二极（一）极性的接触元件 2、20，使它们以相互中心对称的关系安排。在图 15 的实施例中在每个壁面 51 至 58 上各设有另一个有第一极（＋）极性的接触元件 3、30 与另一个有第一极（＋）极性的接触元件 3、30 成中心对称的关系，从而当把插头 6 在插座中翻转过 90 和 180 度的两种情况下都保证在所设的接触元件之间有正确极性的接触。

图 16 的实施例中插头 6 和插座 5 的多边形断面体由三角形的多边形断面体形成，这种三角形的多边形断面体可以绕对称轴 S 翻转，并且有相等的边壁。插头 6 在插座 5 中的正确极性的插入和翻转的保证在于在每个壁面 51、52、53 上各设有一个第一极（＋）的接触元

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件和一个第二极（一）的接触元件，使这些接触元件以交替的顺序沿一个转动方向U安排在多边形断面体M9和M10的多边形断面体的面上。

根据图17，插头6的多边形断面体M11和插座5的多边形断面体M12构成为可以翻转的五边形断面体。在壁面51、52、53、54、59与55、56、57、58、60之间的接触通过在每个壁面上各设一个第一极（＋）的接触元件和第二极（一）的接触元件，以接触元件按相同和不同极性用交替的顺序沿转动方向U安排而实现。

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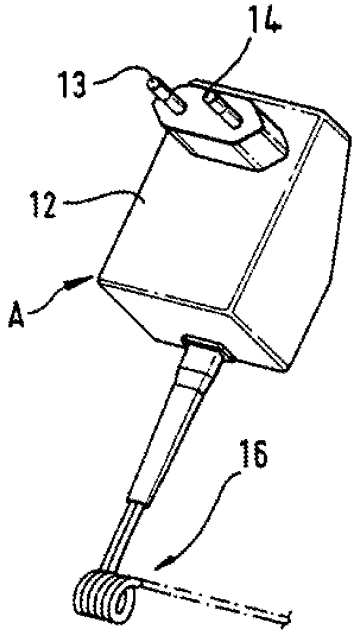


图 2

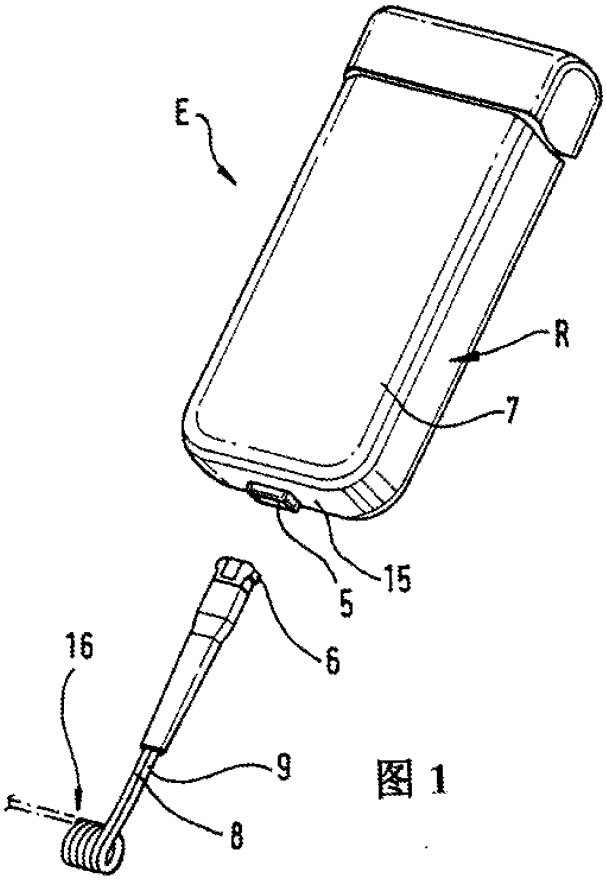


图 1

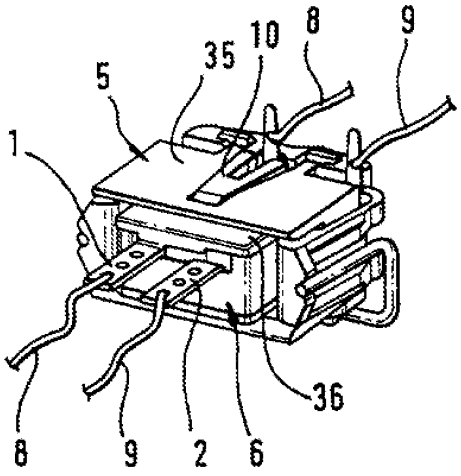


图 3

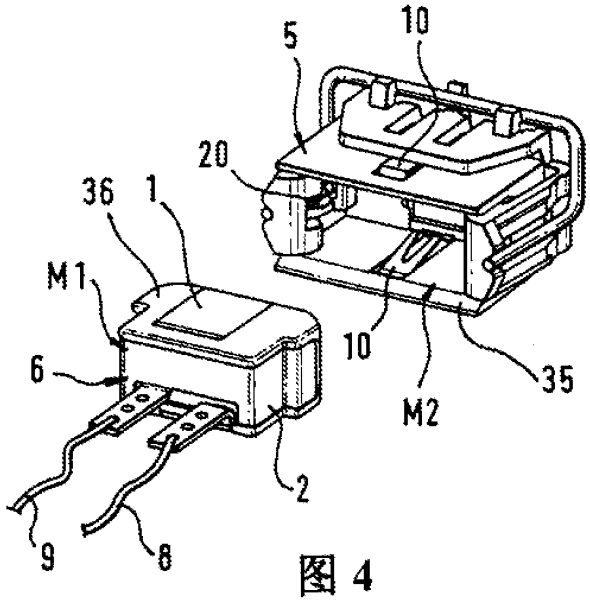


图 4

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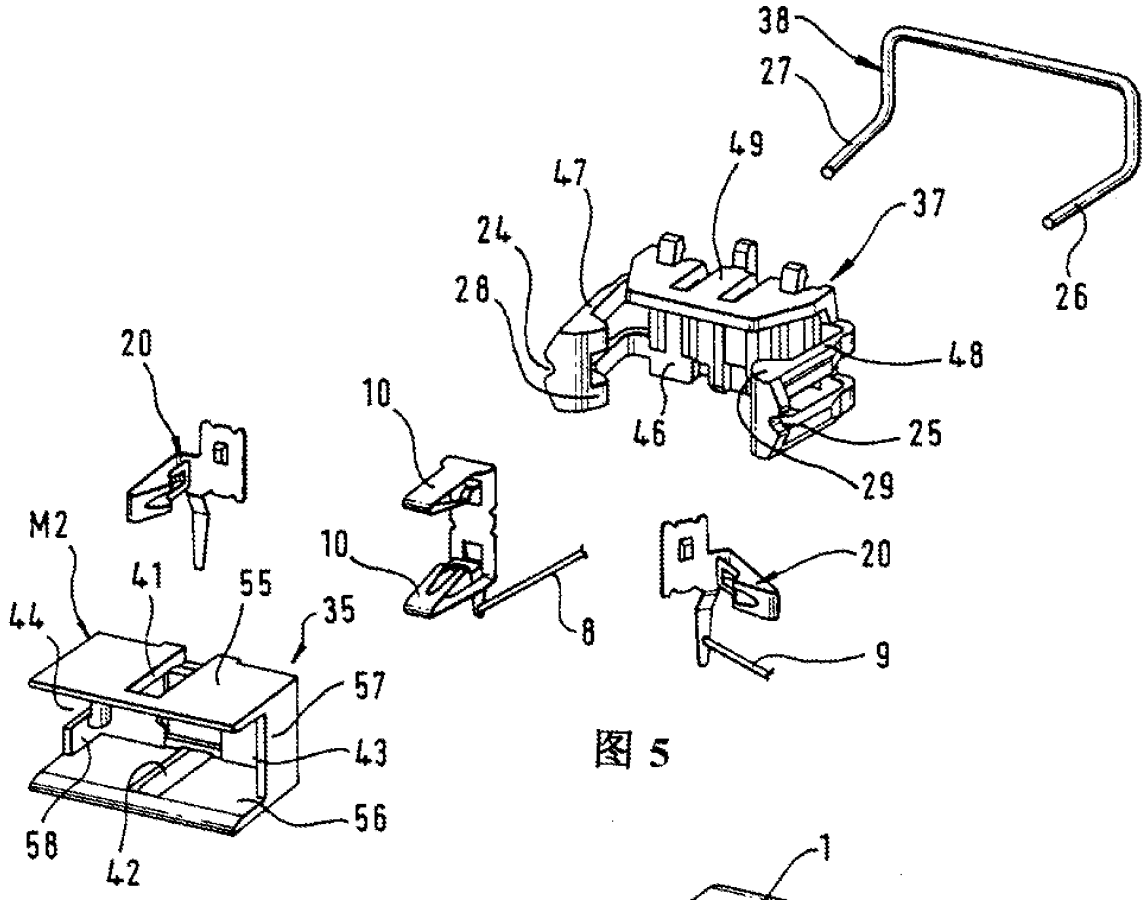


图 5

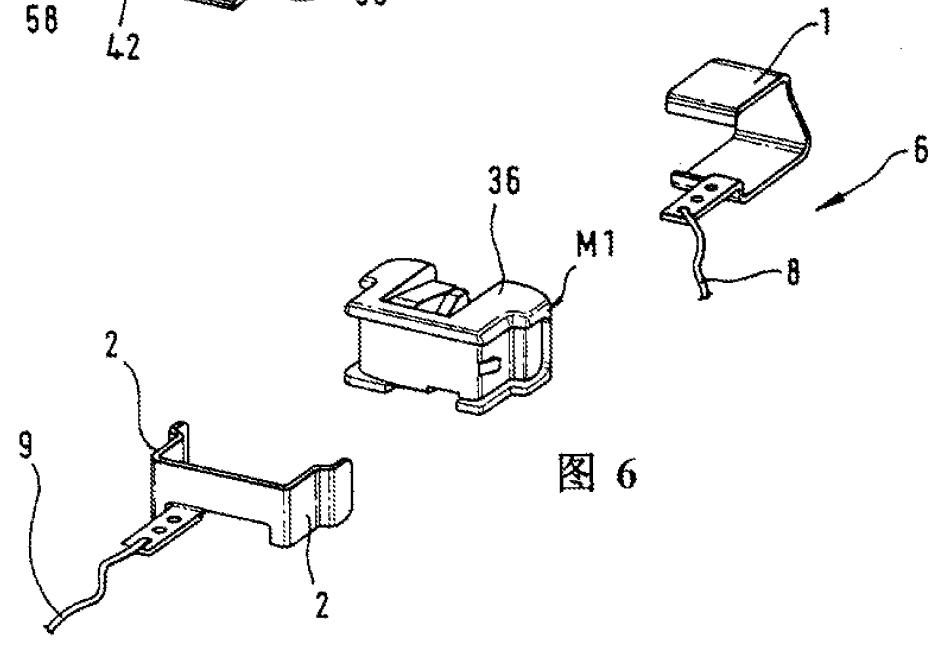


图 6

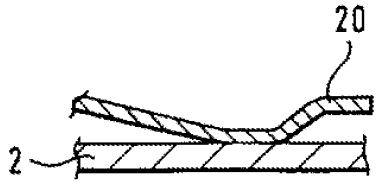


图 6a

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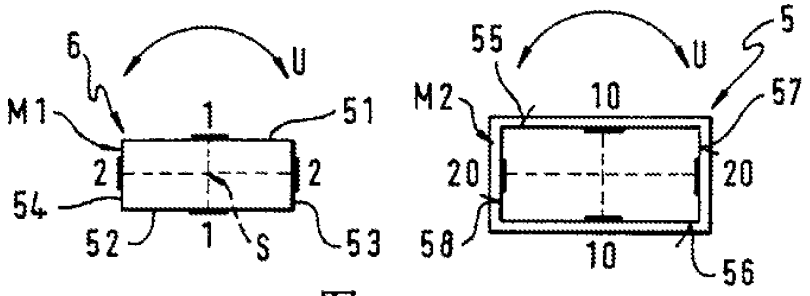


图 7

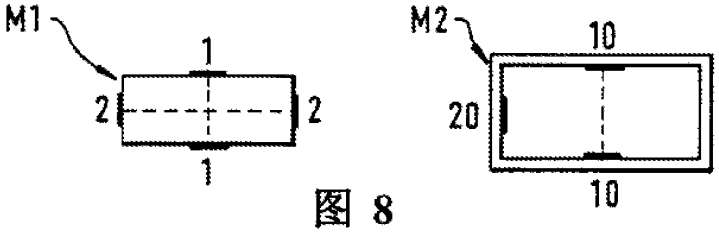


图 8

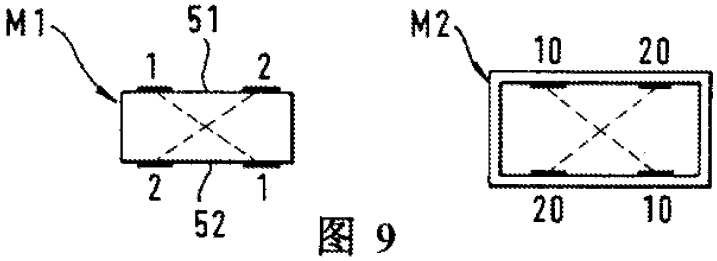


图 9

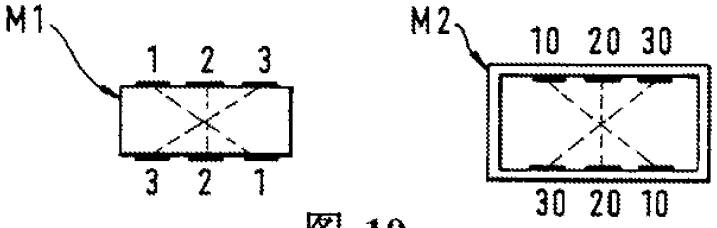


图 10

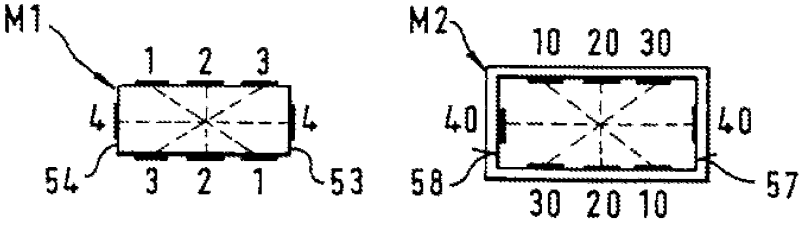


图 11

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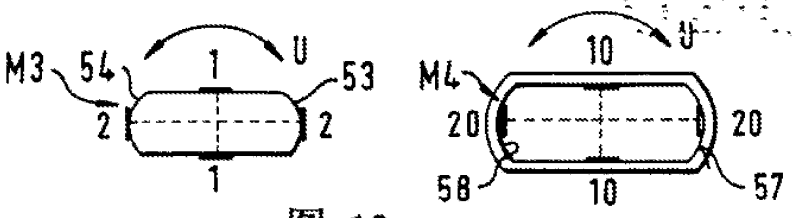


图 12

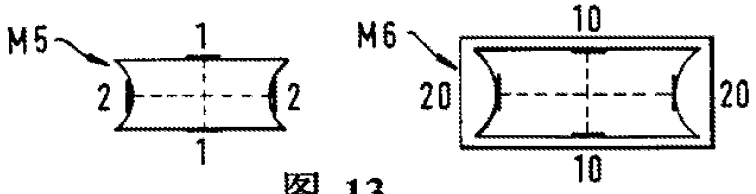


图 13

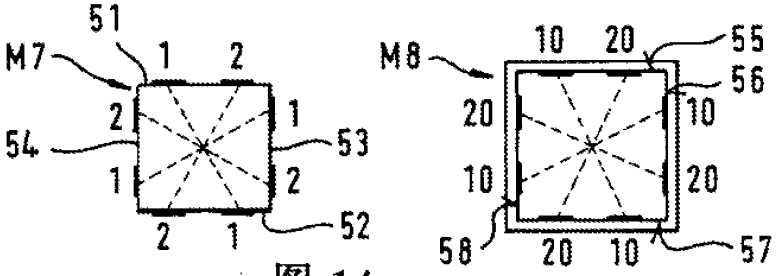


图 14

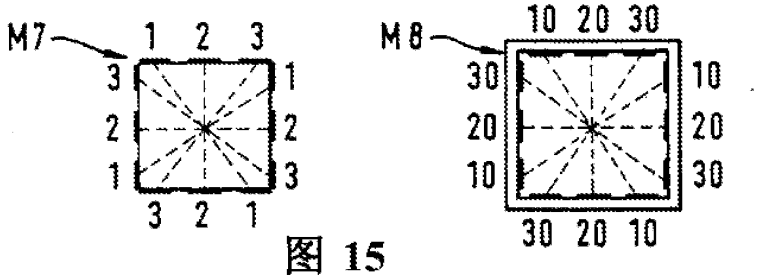


图 15

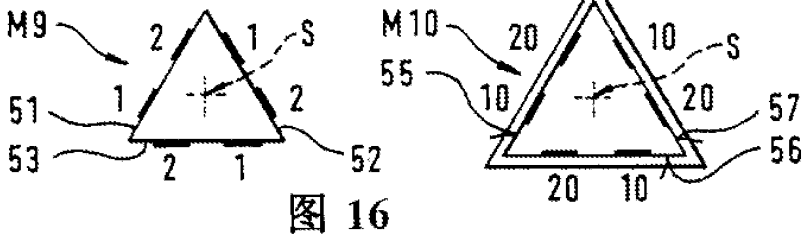


图 16

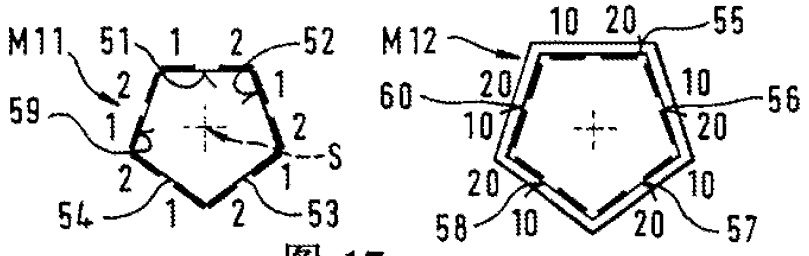


图 17

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Espacenet

CN1969428A Improved connector and device for flexibly connectable computer systems

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Classifications:

IPC ***H01R12/18; G06K19/077; H01R13/64;*** *H01R29/00;*

CPC **G06K19/077 (EP); G06K19/07732 (EP); G06K19/07733 (EP); H01R12/721 (EP); H01R13/64 (EP); H01R13/6658 (EP);** H01R2201/06 (EP); H01R29/00 (EP);

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Improved connector and device for flexibly connectable computer systems

Abstract

A double-sided male USB connector and various card-shaped devices having one or more male USB connectors, which may be single or double sided and are dimensioned to fit into a USB receptacle. When provided with a double sided connector, electronics may be provided to prevent short circuit. The device can have rechargeable power source that is fed power via the connector's power lines. The device can be manufactured from flexible material using a lamination process and may be configured to communicate with a broad variety of other electronic devices.

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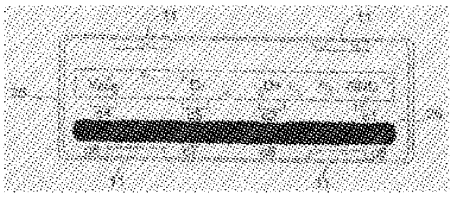
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[32] 2004.11.18 [33] US [31] 60/628,692
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亚伯拉罕·达翰
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代理人 霍育栋 郑霞
权利要求书 11 页 说明书 23 页 附图 19 页

[54] 发明名称

改进的连接器和用于可柔软连接的计算机系统的器件

[57] 摘要

一种双侧凸形 USB 连接器和具有一个或者多个凸形 USB 连接器的各种卡状器件，可以是单侧或者双侧，其尺寸设计成可嵌入到 USB 插座内。该器件可利用层压过程由柔性材料制成，并可设计成与大量各种其他电子器件通信。当带有双侧连接器时，可提供电子仪器以阻止短路。该器件可具有经由连接器的电源线供应电能的可充电电源。



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1.一种支撑在第一和第二组触头的相对表面上的多触头连接器，其中在每组中的对应触头以反相关系隔开地对准，使连接器在两个相对方向与对应的多触头数据连接器连接，其中该对应的多触头数据连接器只具有与触头组任何之一兼容的一组触头。

2.根据权利要求1的连接器，其中该第一和第二组触头支撑在平面衬底上。

3.根据权利要求3的连接器，其中该平面衬底由这样的材料制成，其中该材料具有足够弹性，以弯曲小于50cm的曲率半径，同时不丧失有关电或者机械的功能。

4.根据权利要求2或者3的连接器，其中该平面衬底由这样的材料制成，其中该材料具有足够弹性来折叠，以便在连接器附近增加衬底的厚度。

5根据权利要求1到4任何一项的连接器，是fccs-兼容的。

6.根据权利要求5的连接器，还包括在连接器插入在其中后阻止在FCCS插座触头之间电气短路的装置。

7.根据权利要求6的连接器，其中所述短路预防装置是二极管。

8.根据权利要求7的连接器，还包括只有当在阳极和阴极之间没有电气短路时传导电流的切换单元。

9.根据权利要求1到8任何一项的连接器，适宜连接到耳机。

10.一种适合于容纳根据权利要求1到9任何一项的连接器的凹形连接器。

11.一种凹形连接器，具有厚度小于2.2mm的插入空间，并适宜于联接到根据权利要求5到8任何一项的凸形FCCS连接器。

12.一种便携式器件，包括联接到根据权利要求1到9任何一项的连接器的电路。

13.根据权利要求12的便携式器件，还包括用于容纳电源的凹穴。

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14. 根据权利要求12的便携式器件，还包括电源。

15. 根据权利要求13到16任何一项的便携式器件，其中电源适合于把电源提供给连接到该便携式器件连接器的另外电子器件。

16. 根据权利要求14或者15的便携式器件，其中该电源包含太阳能电池。

17. 根据权利要求12到16任何一项的便携式器件，还包括用于与外部电子器件通信的通信电路。

18. 根据权利要求17的便携式器件，其中该通信电路适合于把在一个通信协议中发送的数据转换到另外的通信协议。

19. 根据权利要求17到18的便携式器件，其中该通信电路使用无线通信。

20. 根据权利要求17到19任何一项的便携式器件，其中所述通信电路适合于能够访问该外部电子器件。

21. 根据权利要求12到20任何一项的便携式器件，具有支撑连接器以及支撑磁条的平面衬底，其中该磁条用于记录器件所有人的个人资料。

22. 根据权利要求12到21任何一项的便携式器件，其中材料的形成和尺寸的设计与标准信用卡兼容。

23. 根据权利要求12到22任何一项的便携式器件，还包括与智能卡通信的电子触头。

24. 根据权利要求12到23任何一项的便携式器件，还包括读取在它的体积内SIM卡的装置。

25. 根据权利要求12到24任何一项的便携式器件，还包括用于显示可视信息的显示器件。

26. 根据权利要求25的便携式器件，其中所述显示器件为LED。

27. 根据权利要求26的便携式器件，其中所述显示器件为OLED。

28. 根据权利要求25到27任何一项的便携式器件，其中所述可视信息包含照片。

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29.根据权利要求12到28任何一项的便携式器件，还包括用于播放音频信息的音频播放单元。

30.根据权利要求29的便携式器件，还包括存储要播放的音频文件的装置。

31.根据权利要求30的便携式器件，其中该音频文件与以下格式中之一兼容：MP3、MP3 Pro、MPEG、WMA、AAC、AAC+、MPEG 4、ATRAC3。

32.根据权利要求12到31任何一项的便携式器件，其中该电路包括用于验证该器件的验证单元。

33.根据权利要求32的便携式器件，其中该验证单元适合于读取生物测定信息。

34.根据权利要求12到33任何一项的便携式器件，其中该电路为数字签名验证单元。

35.根据权利要求12到34任何一项的便携式器件，其中该电路适合于执行数字权利管理。

36.根据权利要求12到35任何一项的便携式器件，包括连接到电路的根据权利要求1到9任何一项的第一和第二连接器。

37.根据权利要求36的便携式器件，其中该通信电路联接在第一和第二连接器之间，用于促进在连接到第一和第二连接器中相应那个上一对外部器件之间的通信。

38.根据权利要求37的便携式器件，其中该外部器件根据不同的数据通信协议操作，而该通信电路适合于把在第一连接器接收到的数据转换成相应的与第二连接器有关的通信协议，并把在第二连接器接收到的数据转换成与相应的第一连接器有关的通信协议。

39.根据权利要求12到38任何一项的便携式器件，还包括用于捕捉可视信息的装置。

40.根据权利要求39的便携式器件，其中所述装置适合于捕捉红外线信息。

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41. 根据权利要求12到40任何一项的便携式器件，还包括用于捕获音频信息的输入装置的转换器。

42. 根据权利要求12到41任何一项的便携式器件，还包括用于接收手写输入的装置。

43. 根据权利要求12到42任何一项的便携式器件，还包括用于捕捉电子生理学信息的装置。

44. 根据权利要求12到43任何一项的便携式器件，还包括用于输入音频信息的转换器。

45. 根据权利要求12到44任何一项的便携式器件，还包括用于估算器件位置的测距仪。

46. 根据权利要求12到45任何一项的便携式器件，还包括用于接收用户输入的用户接口。

47. 根据权利要求12到46任何一项的便携式器件，适合于用作传呼机。

48. 根据权利要求19的便携式器件，还包括确定相对于根据权利要求19的另外便携式器件的距离或者方向的装置。

49. 根据权利要求12到48任何一项的便携式器件，其中该平面衬底层压在其带有绝缘层的相对表面上。

50. 根据权利要求12到49任何一项的便携式器件，其中该电路包括闪速存储器。

51. 根据权利要求12到50任何一项的便携式器件，还包括连接器盖（122），其尺寸设计成嵌在从平面衬底伸出的器件的连接器上，并具有与平面衬底宽度近似的宽度。

52. 一种具有平面衬底的多触头凸形连接器，从该平面衬底伸出两组触头，每组触头以互相不对称的关系相对于该平面衬底在空间上隔开布置，以便在该凸形数据连接器的两个不同的方向允许连接到对应的凹形连接器上。

53. 根据权利要求52的连接器，是FCCS-兼容的。

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54. 根据权利要求53的连接器，还包括在连接器插入在其中后阻止在FCCS插座触头之间电气短路的装置。

55. 根据权利要求54的连接器，其中所述短路预防装置是二极管。

56. 根据权利要求55的连接器，还包括只有当在阳极和阴极之间没有电气短路时传导电流的切换单元。

57. 根据权利要求52到56任何一项的的连接器，其中该平面衬底由这样的材料制成，其中该材料具有足够弹性，以弯曲小于50cm的曲率半径，同时不丧失有关电或者机械的功能。

58. 根据权利要求57的连接器，其中该平面衬底由这样的材料制成，其中该材料具有足够弹性来折叠，以便在连接器附近增加衬底的厚度。

59. 一种凹形连接器，适合于容纳在根据权利要求52到58任何一项的连接器中所述触头组中至少一个触头。

60. 根据权利要求59的凹形连接器，具有厚度小于2mm的插入空间，并适宜于联接到凸形FCCS连接器。

61. 一种便携式器件，包括联接到根据权利要求52到58任何一项的连接器的电路。

62. 根据权利要求61的便携式器件，还包括支撑该电路的平面衬底。

63. 根据权利要求62的便携式器件，具有磁条，该磁条用于记录器件所有人的个人资料。

64. 根据权利要求62或者63任何一项的便携式器件，其中材料的形成和尺寸的设计与标准信用卡兼容。

65. 根据权利要求62到64任何一项的便携式器件、其中该平面衬底层压在其带有绝缘层的相对表面上。

66. 根据权利要求61到65任何一项的便携式器件，适合于由用户穿戴或者附着于用户的衣服上。

67. 根据权利要求61到66任何一项的便携式器件，还包括用于容纳电源的凹穴。

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68.根据权利要求61到66任何一项的便携式器件，还包括电源。

69.根据权利要求68的便携式器件，其中电源适合于把电源提供给连接到该便携式器件连接器的另外电子器件。

70.根据权利要求68或者69的便携式器件，其中该电源包括太阳能电池。

71.根据权利要求61到70任何一项的便携式器件，还包括用于与外部电子器件通信的通信电路。

72.根据权利要求71的便携式器件，其中该通信电路使用无线通信。

73.根据权利要求71或者72的便携式器件，其中该通信电路联接在第一和第二连接器的触头之间，用于促进连接到第一和第二组连接器中相应之一的一对外部器件之间的通信。

74.根据权利要求73的便携式器件，其中该外部器件根据不同的数据通信协议操作，而该通信电路适合于把在第一套触头接收到的数据转换成相应的与第二套触头有关的通信协议，并把在第二套触头接收到的数据转换成与相应的第一套触头有关的通信协议。

75.根据权利要求71或者72的便携式器件，其中该便携式器件通过把在一个通信协议中发送的数据转换成另外的通信协议的方式使用。

76.根据权利要求71到75任何一项的便携式器件，还包括与智能卡通信的电子触头。

77.根据权利要求71到76任何一项的便携式器件，还包括读取在它的体积内SIM卡的装置。

78.根据权利要求72任何一项的便携式器件，其中所述通信电路适合于能够访问该外部电子器件。

79.根据权利要求61到78任何一项的便携式器件，还包括用于显示可视信息的显示器件。

80.根据权利要求79的便携式器件，其中所述显示器件为LED。

81.根据权利要求79的便携式器件，其中所述显示器件为OLED。

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82.根据权利要求79到81任何一项的便携式器件，其中所述可视信息包含照片。

83.根据权利要求61到82任何一项的便携式器件，还包括用于播放音频信息的音频播放单元。

84.根据权利要求83的便携式器件，还包括存储要播放的音频文件的装置。

85.根据权利要求84的便携式器件，其中该音频文件与以下格式中之一兼容：MP3、MP3 Pro、MPEG、WMA、AAC、AAC+、MPEG 4、ATRAC3。

86.根据权利要求61到85任何一项的便携式器件，其中该电路为用于验证该器件的验证单元。

87.根据权利要求86的便携式器件，其中该验证单元适合于读取生物测定信息。

88.根据权利要求61到87任何一项的便携式器件，其中该电路为数字签名验证单元。

89.根据权利要求61到88任何一项的便携式器件，其中该电路适合于执行数字权利管理。

90.根据权利要求61到89任何一项的的便携式器件，还包括捕捉可视信息的装置。

91.根据权利要求90的便携式器件，其中所述装置适合于捕捉红外线信息。

92.根据权利要求61到91任何一项的便携式器件，还包括用于输入音频信息的转换器。

93.根据权利要求61到92任何一项的便携式器件，还包括用于捕捉电子生理学信息的装置。

94.根据权利要求61到93任何一项的便携式器件，还包括用于估算器件位置的测距仪。

95根据权利要求61到94任何一项的便携式器件，还包括用于接收用户

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输入的用户接口。

96. 根据权利要求61到95任何一项的便携式器件，适合于用作传呼机。

97. 根据权利要求72的便携式器件，还包括确定相对于根据权利要求72的另外便携式器件的距离或者方向的装置。

98. 根据权利要求61到97任何一项的便携式器件，其中该电路包括闪速存储器。

99. 根据权利要求61到98任何一项的便携式器件，还包括连接器盖（122），其尺寸设计成嵌在从器件伸出的器件的连接器上，并具有与器件平面衬底宽度相等（近似）的宽度。

100. 一种凸形FCCS连接器，形成在平面衬底上，而该平面衬底在层压在其带有绝缘层的相对表面上。

101. 一种便携式器件，包括联接到根据权利要求100任何一项的凸形FCCS连接器的至少一个电子元件。

独立权利要求书为：一种用于制造该便携式器件的方法，所述方法包括：

a. 制造主PCB;

b. 制造连接器PCB，该连接器PCB在其至少一个表面上支撑至少一个FCCS兼容连接器;

c. 把所述主PCB连接到所述连接器PCB以便形成复合PCB;

d. 把该至少一个电路装配到所述主PCB；以及

e. 把上下层层压到所述复合PCB上。

102. 一种当从属于权利要求62或者权利要求100时、用于制造根据权利要求12到50任何一项或者权利要求62到98任何一项的该便携式器件的方法，所述方法包括:

a. 制造主PCB;

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b. 制造连接器PCB，该连接器PCB在其至少一个表面上支撑至少一个FCCS兼容连接器；

c. 把所述主PCB连接到所述连接器PCB以便形成复合PCB；

d. 把该至少一个电路装配到所述主PCB；以及

e. 把上下层层压到所述复合PCB上。

103. 一种当从属于权利要求62或者权利要求100时、用于制造根据权利要求12到50任何一项或者权利要求62到98任何一项的该便携式器件的方法，所述方法包括：

a. 制造主PCB，该主PCB包括在其至少一个表面上支撑至少一个FCCS兼容连接器的连接器PCB；

b. 把电子器件装配到所述主PCB；

c. 把上下层层压到所述装配的主PCB上。

104. 一种当从属于权利要求62或者权利要求100时、用于制造FCCS连接器的方法，其中该FCCS连接器用在根据权利要求12到50任何一项或者权利要求62到98任何一项的该便携式器件中，所述方法包括：

a. 制造中间PCB；

b. 制造带有FCCS兼容触头的顶部PCB；

c. 制造带有FCCS兼容触头的底部PCB；

d. 把顶部和底部PCBs装配到该中间PCB上，以形成夹层结构。

105. 一种具有凹形FCCS兼容连接器的耳机，其中该凹形FCCS兼容连接器适合于联接到凸形FCCS连接器上。

106. 根据权利要求105的耳机，其中该凹形FCCS连接器布置在部分空心的平面壳体内。

107. 根据权利要求106的耳机，具有至少一个联接到绳上的耳塞，其中该绳穿过壳体中开口，并连接到壳体内的弹簧加载机构，而在使用后该

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弹簧加载机构适合于把绳缩进到壳体内。

108. 根据权利要求107的耳机，其中该至少一个耳塞由弹性材料制成，而该弹性材料可收缩到足够小尺寸，从而耳机在其紧凑状态下的结合宽度不超过3mm。

109. 一种具有凸形FCCS连接器的音频器件，其中该凸形FCCS连接器用来连接到根据权利要求105的耳机。

110. 根据权利要求109的音频器件，其中该凸形FCCS连接器还用来连接到计算机的FCCS端口，用于从计算机把音频文件下载到音频器件的存储器。

111. 一种模块化计算机，包括：

根据权利要求12到50任何一项或者权利要求62到98任何一项的至少两个便携式器件，每个具有经由互补连接器互连的相应的多触头连接器。

112. 根据权利要求111的模块化计算机，包括：

a. 比3mm薄的第一单元，由以下部分形成：

i. 平面中间层，

ii. CPU，

iii. 至少一个能够接收充电电压的FCCS连接器，

iv. 辅助数据连接器，

v. 顶部层压层，以及

vi. 底部层压层；

b. 比2.5mm薄的第二单元，该单元能够通过所述辅助数据连接器与第一单元通信。

113. 根据权利要求111或者112的模块化计算机，其中所述便携式器件中一个适合于容纳电源。

114根据权利要求113的模块化计算机，其中该电源包括太阳能电池。

115. 一种模块化计算机系统，包括：

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a. 比3mm薄的第一单元，由以下部分形成：

i. 平面中间层，

ii. CPU，

iii. 至少一个能够接收充电电压的FCCS连接器，

iv. 辅助数据连接器，

v. 顶部层压层以及

vi. 底部层压层；

b. 比2.5mm薄的第二单元，该单元能够通过所述辅助数据连接器与第一单元通信。

116. 一种便携式器件，包括在其一端具有FCCS兼容连接器（182）的柔性带（183）。

117. 根据权利要求116的便携式器件，还包括安装在该带（183）相对端以及尺寸设计成容纳该FCCS兼容连接器（182）的扣钩（184）。

118. 根据权利要求116或者117的便携式器件，还包括当该扣钩（184）与该FCCS兼容连接器（182）配合时适合于操作的电路（181）。

119. 根据权利要求118的便携式器件，还包括与该FCCS兼容连接器（182）通信的装置。

120. 根据权利要求118的便携式器件，其中该电路（181）包括用于与外部器件通信的通信电路。

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改进的连接器和用于可柔软连接的计算机系统的器件

发明领域

本发明涉及电气连接器。

发明背景

塑料数据卡为大家所熟知，其中包括ATM卡、信用卡、雇员卡等等。技术进步增加了这种器件的数据和处理能力，并使它们更紧凑。

USB器件也很普通，用于例如鼠标、键区、打印机和类似装置的外围器件。USB 令牌广泛地用作从一个计算机到另一个计算机存储、读取和传递信息的装置。其他的令牌用来验证用户或者产生数字签名。各种型式的自供能的卡片正在出现。

在2001年9月20日公开的、名称为"在智能卡和主机服务站之间通信的方法"的WO0169881（Drabczuk等）中披露了卡片类可移动产品，其中该产品具有微控制器和USB接口，其中微控制器根据第一通信协议通信，而USB接口用于把根据该第一通信协议的指令转换为根据第二通信协议的指令，反之亦然。

2003年4月3日公开的、名称为"用于连接到电信器件端口的安全装置"的WO03027946（Elbaz等）描述一种电子钥匙器件，该电子钥匙器件利用芯片卡片制造技术制造，并具有USB连接器。

2004年2月12日公开的、名称为"较低高度USB接口连接器件及其存储器器件"描述了一种具有低高度的连接器件，其中该连接器件包括连接器部件和一组金属端子。该连接器部件具有与在标准USB接口槽插座中的内部空间高度匹配的高度，以便插入到该标准USB接口槽插座内。

2004年2月19日公开的、名称为"用于与USB插座连接的插头"的第2004/0033726号（Kao）美国专利申请描述了一种用于与USB插座连接的插头。该插

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头容纳多个金属触头，当插头连接到其中时用于与USB插座的接触触头接触。该插头具有小于普通USB插头的厚度，因此它可由厚度小于普通USB插头的计算机外围器件利用。

2003年5月27日公开的、名称为"具有USB连接器的电子器件"的第2004 / 0102093号美国专利申请（Huang）描述了一种具有电路板和安装在该电路板上USB连接器的电子器件。该USB连接器包括主体部分、至少一个触板和框架，其中主体部分整体地形成在电路板上，而触板形成在主体部分上，以及框架固定到主体部分并以围绕主体部分的方式安装在电路板上。

2001年7月5日公开的、名称为"用于预防通用串行总线收发器短路的方法和电路"描述了这样一种装置，其中该装置利用探测通往一个或多个预定电压源的最近线路的比较电路来预防USB电路短路。这样一种方法需要专用软件来比较驱动和传递信号。

图1示出了典型的现有技术USB连接器组件，其中该组件包括凹形部件（插座），而该凹形部件通常为具有内部弹性叶片11的矩形外框架10形式，这种叶片11压在互补的凸形USB连接器的外表面上，从而把两个连接器紧紧地保持联接。表示为12的接触片具有从其中悬置的四个主要电触头V_{bus}、D-、D+和GND，用于在那里分别连接正电压轨条、正和负数据线以及地面。成型的槽13容纳凸形USB连接器的互补状突起，其中该凸形USB连接器具有矩形外框架14，从而在其外表面上的外围触头与在连接器带12上的对应触头啮合。与插座框架10的下边缘相比，该连接器条12更靠近其上边缘。因此，该凸形USB连接器只能在一个方向进入。

图1不是按比例绘制，实际上凸形和凹形USB连接器都具有很窄的形状，从而乍看起来不容易确定在插入插座前哪个方向容纳该凸形USB连接器，当由于经常是USB端口从计算机后面访问而不容易看到插座时，这个困难就增加。

随着工业朝着减小厚度以及增加所讨论的USB 令牌便携性方向进步，出现了几个问题：

1.经常难以把具有USB插头的卡片尺寸令牌插入到USB插座内。例如，其

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他器件可能已经在附近形成插头，以及膝上型电脑在USB插座和桌子之间可能没有用于卡片长度的足够空间。

2. 用于当前令牌的现行制造方法是适合较厚器件的集合。尽管众所周知的是，薄器件可利用扎制工艺来制造，但由此器件的最后尺寸限制了可支撑的电子线路的容积。

3. 具有USB插头的卡片提供了非常狭窄的外形，并由于它们没有不对称地保持在如上参考图1所述的环绕框架内，它们可完全地在两个方向中任何一项方向插入到USB插座内。当然，如果该卡片不正确地插入，则卡片的USB触头将与互补的插座触头啮合。然而比这更糟的是，存在着这样的危险，即卡片的USB V_{bus}触头会接触弹性叶片11，该叶片11通常为金属，并经由它们与之连接的矩形框架联接GND。这会引起V_{bus}触头与GND发生短路而必须避免。

再来看卡状器件，目前具有内部电池的信用卡尺寸器件不包括对电池再充电的装置，因此限制为低电流电子仪器、短使用时间中任何一项或者两者。

USB为通用串行总线的首字母缩写词，这已经变成用于把外围器件连接到计算机母板的通用标准。尽管具体参照USB标准来描述发明，但应该理解的是，发明的原理同样地适用于其他标准，特别是具有与USB标准不同的触头布置的连接器。因此，应该理解的是，如描述和如权利要求要求保护的发明不想限制在任何具体的标准，同时缩写为FCCS的更通用术语"柔性连接计算机系统"将用来表示允许器件连接到计算机的任何接口标准。

因此需要一种凸形FCCS连接器，其中该FCCS连接器可以在两种方式插入到FCCS插座内，以便克服例如USB连接器的已知连接器的限制。

发明内容

因此发明的一个目的是提供一种凸形FCCS连接器，该凸形FCCS连接器可以两种方式插入到FCCS插座内。

还一个目的是提供一种可在不产生短路情况下插入到FCCS插座内的凸

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形FCCS连接器。优选的是，这种凸形FCCS连接器可以两种方式插入到该FCCS插座内。

此目的根据发明的一个方面实现，其中双侧FCCS连接器能够从两个相对侧部连接到FCCS插座连接器上。

根据发明的一个方面，提供一种支撑在第一和第二组触头的相对表面上的多触头连接器，其中在每组中的对应触头以反相关系隔开地对准，使连接器在两个相对方向与对应的多触头数据连接器连接，其中该对应的多触头数据连接器只具有与触头组任何之一兼容的一组触头。

根据发明的另一个方面，提供一种具有平面衬底的多触头凸形连接器，从该平面衬底伸出两组触头，每组触头以互相不对称的关系相对于该平面衬底在空间上隔开布置，以便在该凸形数据连接器的两个不同的方向允许连接到对应的凹形连接器上。

优选的是，例如，该连接器是FCCS兼容的，并可以是USB兼容的或者微型USB兼容连接器。

根据发明的优选实施例，公开一种卡状器件，其中该卡状器件可经由根据发明的双侧FCCS连接器与例如计算机的器件接口。

优选的是，在这种器件中至少一个FCCS连接器具有阻止在连接器相对侧之间电气短路的装置。

根据一个优选实施例，这种器件具有至少35 mm的长度、至少40mm的宽度以及小于2.5mm的厚度，并结合到一个或多个FCCS连接器上，其中该一个或多个FCCS连接器每个具有小于13 mm的长度、大于3mm的宽度以及小于2.7mm而大于1mm的厚度。

根据另一个优选实施例，至少一个FCCS连接器为小于6 mm的长度、大于3mm的宽度以及小于1.1mm而大于0.3mm长度的微型FCCS连接器。

在这样一个实施例的变型中，该器件是柔性、可拆卸的，利用层压过程制造并适宜携带在人体上。

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优选的是，与发明的双侧凸形FCCS连接器一起使用的FCCS插座具有纵向尺寸小于1mm的插入空间。

因此，具有根据发明的双侧凸形FCCS的器件可从上下侧连接到FCCS插座上，借此如果不能从一侧连接该FCCS连接器，则该器件可以颠倒。

可选择的是，如果该器件具有多个连接器，如果不能利用其中一个FCCS连接器连接，则该器件可利用它的FCCS连接器中另一个连接。

优选的是，该器件通过从经由FCCS插座连接器的V_{bus}和GND触头供应的电能操作。

优选的是，该器件包括可充电电池，该可充电电池可利用经由FCCS插座连接器供应的电能再充电。

优选的是，该器件是轻型和柔性的，并还可包括标准智能卡元件。

根据发明的双侧连接器很少会由FCCS插座擦伤。

该器件可以低成本制造，并可足够紧凑，以嵌入在用户的钱包内。可选择的是，它可包括在手表、手镯或者项链内，并能与各种其他的器件通信。

本发明的其他目的和优点将从结合附图的以下描述中变得显而易见，其中借助于示意图和实例，公开了本发明的实施例。

附图说明

为了理解发明以及想了解在实践中发明是如何实现的，下面将借助于只针对USB连接器的非限制实例，参考附图，描述一些优选实施例，其中：

图1用插图示出了典型现有技术的USB插座；

图2a到2e示出了根据发明各种实施例的双侧USB连接器的几个视图；

图2a和2b示出了阻止在阳极和阴极之间电气短路的方法的透视图；

图3为根据本发明一个实施例的具有多个USB连接器的器件的平面图；

图4a和4b分别为在图3中所示器件的平面图和剖面图，其中示出了它的

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尺寸;

图5大略地示出了根据发明的柔性卡状器件;

图6a和6b为这样一个剖面图，其中示出了图5所示器件的柔性如何使连接器的有效厚度加倍;

图7a为根据发明的具有夹层结构的器件的分解示意图;

图7b为根据发明的具有夹层结构的连接器的分解示意图;

图8为结合卡以及具有电路和双侧凸形USB连接器的器件的平面图;

图9为具有用于联接其他电子器件通信接口的器件的示意图;

图10为带有集成显示器的器件的平面图;

图11为具有用于播放或者再播放音频信息的器件的平面图;

图12为具有多个凸形USB连接器的器件的示意图;

图13为具有双侧凸形USB连接器的器件的侧面透视图;

图14为具有用于输入ASCII信息的用户接口的器件的侧面透视图;

图15a和15b分别为薄USB插座的平面图和剖面图;

图16为大略地示出了大量电子模块部件的分解图，其中该电子模块部件使用多个根据发明的卡模块;

图17到20示出了具有根据不同实施例的USB插座的卡状器件的各种视图;

图21为具有USB插座的标签支座的平面图;

图22为超薄型耳机的平面图;

图23为在它的存储器内具有USB写保护区域的器件的平面图;

图24为可充电和某时同步的器件的平面图;

图25a和25b分别为具有双侧凸形USB连接器的器件的平面图和剖面图;

图26为具有用于显示可视信息的几个选择性显示器的器件的平面图;

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图27为便携式音频播放器的俯视图；

图28为具有传感器以探测器件拆卸的器件的平面图；

图29为具有彼此通信能力的两个器件的平面图；以及

图30为根据发明实施例的柔性器件的示图，其中发明的实施例为携带USB连接器的手表或者悬挂物形式。

典型实施例的详细描述

在这里提供优选实施例的详细描述。然而，应该理解的是，本发明可以各种形式存在。

因此，在这里公开的具体细节不能解释成限制，而作为权利要求书的基础，以及作为教导本领域技术人员如何在实际上的任何适当详细系统、结构或者方式中使用本发明的典型基础。

在这里涉及的附图和描述中，相同的参考数字用来表示在超过一个附图中出现并且功能等效的部件。

图2a和2b分别大略地示出了根据发明的双侧凸形USB连接器20的相对表面，其中在第一表面22（侧A）具有第一接触条21，而在第二表面24（侧B）上具有第二接触条23。举例来说，第一接触条21在第一表面上容纳四个触头c1、c2、c3和c4，而第二接触条23在相对（第二）表面上容纳四个触头c5、c6、c7和c8，从而触头c1和c8互补，同样触头c2和c7互补，等等。

这在图2c中更清楚地示出，其中图2c大略地示出了连接器20的侧视图，从该图中看出，在第一方向，凸形USB连接器20插入凹形USB插座25使触头c1到c4正确地与在插座25中的对应触头GND、D+、D－和V_{bus}对齐，同时翻转凸形USB连接器使互补触头c8到c5分别正确地与在插座中的触头GND、D+、D－和V_{bus}对齐，因此允许凸形USB连接器20在任何一项方向正确连接到凹形USB插座25内。

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因此USB连接器20为支撑在第一和第二组触头21和23上的相对表面上的多触头连接器，其中在第一组中的相应触头c1到c4以反相关系与在第二组中对应触头c8到c5隔开地对齐。这样，例如，c1和c8为在连接器相对表面上的对应触头，然而以反相关系隔开地对齐，同时触头c1、c5和c2、c6直接对齐。这就使连接器在两个相对方向与对应的多触头数据连接器连接，其中该对应的多触头数据连接器只具有与触头组任何之一兼容的一组触头。该凸形USB连接器20可以是双侧的PCB（印刷电路板）。可选择的是，该凸形USB连接器20可利用塑料模具注射来制造。

需要注意的是，当用于凸形或者凹形连接器中任何一项时，术语"USB连接器"是指USB兼容连接器。因此，具体地说，凸形USB连接器20不需要具有如在www. usb. org. 中限定的凸形USB插头的机械特性。而是需要能与标准USB插座在电力上配合。

图2d示出了根据发明的改型USB插座25（构成凹形USB连接器），互补的凸形USB连接器20可在任何一项方向上与之联接。从而插座使用用于如上参考图1所述现有技术插座中相同的部件，将使用相同的参考数字。表示为12的接触条具有从其中悬置的四个主要电触头V_{bus}、D+、D-、和GND，用于在那里分别连接正电压轨条、正和负数据线以及地面。成形的槽26容纳凸形USB连接器20，以便根据其中凸形USB连接器20插入USB插座25内的方向，在其外表面上的外围触头c1到c4或者c5到c8与在连接器带12上的对应触头啮合。双侧凸形的USB连接器20可因此在任何一项方向插入在USB插座25内，同时保证靠近接触条12的互补触头始终正确地对准。于是在USB凸形连接器相反侧上的外围触头可使弹性叶片11短路，该叶片11通常为金属，并经由它们与之连接的矩形框架联接GND。当然，必须避免此种情况发生。

图2d和2e示出了优选实施例的示意透视图，其中该图示出了凸形USB连接器20分别连接到USB插座25的V_{bus}和GND接头上的两对互补触头c1、c8和c4、c5。在凸形USB连接器20中的每一触头c4和c5连接到相应二极管27和28的阳极。当触头c4与USB插座25的V_{bus}触头啮合并因此处于正电位时，二极管27导

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电，然而由于在USB凸形连接件相对表面上的触头c5与片簧11啮合，并因此连接到GND上，从而该二极管28反向偏置并因此阻抗电流。当凸形USB连接器反向从而触头c4要么处于漂游电位要么通过片簧11与地面短路时，相反情况发生。借助于这种装置，在使凸形USB连接器反向后，在V_{bus}和GND之间发生短路的可能性被避免。对应于触头c4和c5的凸形USB连接器20的V_{bus}触头经由二极管与单个V_{bus}触头连接。同样地，对应于触头c1和c8的GND触头与单个GND触头连接。可以被理解的是，二极管可以这种方式使用，以利用双侧USB连接器或者单侧USB连接器阻止短路，其中该连接器被插入，从而它的触头朝向插座USB触头的相对侧，由此发生与片簧11短路的危险。

图2e示出了短路问题的替代解决办法，其中USB连接器20的V_{bus}和GND触头连接到继电器单元31上，而如果GND与其中一个V_{bus}导线接触时，该继电器单元只从V_{bus}触头传送正向电流，并不断开该电路。可选择的是，该继电器单元31也可独自连接到每一V_{bus}触头。

图3大略地示出了器件30的上部平面图，其中该器件30包括平面衬底31，该衬底31承载电路32并从其相对侧悬置相应的凸形USB连接器33和34。该凸形USB连接器33和34之一或者两者可以是双侧连接器，其中触头布置对应于图2中的触头布置，或者可以是具有只布置在单个表面上触头的传统的凸形USB连接器。电路32可位于平面衬底31的容积内，或者位于连接器33,34中任何一项的容积内，或者在两者之间分开。该平面衬底31可以是与标准信用卡状似的尺寸，由此形成用于卡片状器件家族的基板，这将在以下描述中变得更明显。

一旦不能从一侧连接USB连接器33，则该器件30可从相对侧翻转或者连接；或者该器件可旋转180度，并利用USB连接器34连接。该器件30因此为具有平面衬底31的多触头凸形连接器，从其中伸出两组触头33和34。每组触头以相互不对称关系相对于平面衬底隔开布置，例如这是因为触头组33的V_{bus}触头必须在如示出的触头组33的左手侧，同时触头组34的V_{bus}触头必须位于该触头组34的右手侧等等。这允许以器件的两种不同方向连接到对应凹形连接器

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上。

电路32可以是:

在主要器件上的盘;带有USB接头和用于存储检索信息并在计算机之间交换信息的存储器的便携式器件。

USB 令牌:用于在本地或者利用远程服务器验证用户的便携式USB器件,控制访问计算机网络、数字签名验证、存储未存储在计算机系统的敏感信息。

MP3播放机;用于以MP3格式存储和播放声音的器件;

分配软件的装置。

该电路32可具有数字权限管理(DRM)的装置。

图4a为根据不同实施例的卡31的上部平面图,其中该卡支承电路32,并具有单个双侧凸形USB连接器20,其中该卡的宽度用"a"表示,而长度用"b"表示。同样地,卡31的宽度用"a1"表示,而它的宽度用"b1"表示。如果理想的话,如图3所示,卡31可具有另外的USB连接器。

图4b为卡31的剖面图,其中示出了由"c"表示的接触条21和23的最大厚度(利用参考图2a和2b描述的标号),同时该卡的最大厚度由"c1"来表示。

在优选实施例中,该器件的结构设计成a1大于35mm,而b1大于40mm,同时c1小于3mm,以适应用户的钱包。连接器的宽度"a"小于13mm,以为了能够插入到传统的USB插座内。该器件的长度"b1"大于3mm,以为了能够在凸形USB连接器20和USB插座相应触头之间电连接。

图5示出了具有带接触条21和23的双侧USB凸形连接器的卡31,并且是柔性的,在不损失电或者机械功能情况下具有R< 50cm的曲率半径。根据发明的实施例,a优选的是12.2mm,b优选的是16mm,a1优选的是54mm,而b1优选的是69.7mm。

图6a和6b为剖面图,其中示出了图5所示卡31的柔性可如何被利用,以补偿小于把凸形USB连接器插入USB插座需要的最小厚度,需要注意的是,如

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果该凸形USB连接器呈现太窄的外形，它将从插座脱出，因为片簧不会压住该凸形USB连接器的外围表面。为避免此情况发生，卡31被制造得具有足够柔性，从而它可弯曲几乎折叠而不折断。借助于这种手段，相对连接器20的末端可与连接器20一起插入插座中，因此呈现具有总厚度足够小以嵌入到USB插座连接器的组合外形（如图6b所示），同时足够大以由片簧啮合，并由此保持在USB插座连接器内。

图7a为根据优选制造过程的具有夹层结构的器件30的分解示意图。电路（未示出）容纳电气部件和/或显示部件和/或电源部件，并与USB连接器20整体形成。该电路设置在中间层35，其中该中间层35位于器件30的绝缘顶层36和绝缘底层37之间。这些层利用层压过程结合一起。该层压过程可以是包括对表面加热以使层结合的热层压或者可包括环氧树脂和UV固化过程的冷层压。该绝缘层36和37可由PVC或者任何其他适当的柔性、电绝缘片材制成。该中间层35为"L"形，其中该带有双侧凸形USB连接器20形成在该"L"的用作连接器区域38的凸出部上。顶部和底部绝缘层36和37为类似形状，以便在组装后形成复合的夹层结构。

该层压卡提供非常窄的外形，典型地在0.8到1.2 mm数量级。可以有这样的情况，即当希望集成具有较高外形但不放弃卡本身窄外形的庞大部件时。这可通过把厚部件39安装在连接器区域上而获得，由于如上参考图6b所述的那样，USB连接器在任何情况下都必须提供比标准信用卡较宽的外形，以保持在USB插座内。

应当注意的是，如上参考图7a所述的层压卡包括单个USB连接器，其中该只在其单个表面上具有触头。然而，相同原理可同样应用于支撑一个双侧USB连接器或者都是单侧或者双侧的两个或更多USB连接器的平面衬底。

图7b为根据具有夹层结构的发明连接器20的分解示意图。连接器20通过夹入以下结构形成：

a. 中间PCB40；

b. 具有顶部外触头的顶部PCB41；

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c. 具有底部外触头的底部PCB 42。

在夹层工艺后该PCBs 41和42电连接到PCB 40上。

图8为包括卡31的器件的平面图，其中如图3所示，该卡31带有电路32并具有双侧凸形USB连接器20。在使用中，USB连接器20可插入到计算机45（构成第一电子器件）的USB端口（例如插座），以便经由USB连接器20触头把电能输送到电路32上。另外或者可选择的是，可提供如46大略地示出的光生伏打电池和/或太阳能电池板，以便对卡31内的可充电电源47充电，例如该可充电电源47为可充电电池或者电容器。该卡31可具有电池可拆卸地嵌入其中的凹穴。该卡31可具有第二接口48，允许卡31连接到例如移动电话或者PDA的第二电子器件49上。第二接口48可具有用于把电能供应到第二电子器件49上的触头。该电路32可包括例如用于快速驱动应用的闪存部件50的存储器。优选的是，该闪存部件包括可再写和非清除区两者。

该卡31可存储用来验证的加密键字。例如，计算机45可被编程来响应卡插入到USB插座44内，以把询问数据发送到器件，该器件将根据存储的加密键字外，还将以一个结果作出响应。计算机45于是将验证该响应并允许或者拒绝访问它的硬盘。

例如那些被用来无线通信的许多具有内置电池的便携式仪器经常消耗大量电能，从而它们的电池迅速放电，并丧失了它们的可用性。因此，如果在卡31内的电源47可充电，则它可以方便和成本有效方式轻易地保持充满状态。

图9为本发明实施例的示意图，其中该图示出了通过55表示的通信接口在对应于图8中所示装置的器件30和另外电子器件49之间的通信，该另外的电子器件49例如为蜂窝电话、膝上电脑、个人数字助理（PDA）、无线鼠标、无线键盘或者类似装置。该通信接口55可以是例如USB通信的有线通信、例如蓝牙、802.1、802.11X、USB无线、wi-fi、wi-max、GSM、UMTS、GPRS、EDGE、CDPD、ISO 14443、ISO 15693的射频（RF）通信或者例如IRDA的红外线通信。此外，通信接口55可联接到例如GPS接收器的测距仪56或者用于蜂窝站三角测

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量的装置上，以便估算器件31的位置。该器件30可包括USB控制器57和闪速存储器58。这种方法可用作RF适配器和闪速驱动。该器件30可使用这种通信，以从通信接口实时或者脱线记录音频或者视频信号。例如，它可记录经由用户的蜂窝电话49传送的电话交谈。

图10为当前发明实施例的俯视图，其中该器件31具有用于显示可视信息的显示器60。该显示器60可以是LED、LED矩阵、LCD、电致发光器（EL）或者OLED。在器件31由如上参考图7a所述夹层结构形成的情况中，覆盖显示器60的顶层需要是透明的，以能够使可视信息被看见。该可视信息例如可以是家庭成员的照片或者录像。用这种方法，该器件可用作在卡上的微型影集。此外，该显示器可以是闪光灯形式，其中的颜色是可变化的。

可选择的是，可视信息可以是通过无线通信或者一旦用户把卡插入到连接到远程服务器的计算机上通过USB数据通信接收的消息。

图11为根据发明可替代实施例的器件31的俯视图，其中具有直接地通过可以是压电扬声器的扬声器61或者间接地通过音频连接器62播放或者再播放的有声信息，其中音频连接器62可连接到耳机或者例如立体声系统的能够播放声音的音频系统。

用这种方法，该器件31可用作：

MP3播放机；用于存储和播放MP3音乐文件或者任何其他声音格式的器件，其中该其他声音格式例如为MP3 Pro、MPEG、WMA、AAC、AAC+、MPEG 4、ATRAC3

收音机；FM或者AM收音机

话音记录器；可记录和再播放象口述、对话或者类似声音的声音信号的器件。

蜂窝或者无绳电话。

图12为具有多个凸形USB连接器的器件31实施例的示意图，其中该图示出了在通过第一凸形USB连接器33的第一外部器件65和通过第二凸形USB连接

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器34的第二外部器件66之间的连接。与两个外部器件的通信或者可利用例如USB协议的相同通信协议或者利用与从一个协议到另一个协议转换数据的器件31的不同协议来实现。

图13为根据本发明可替代实施例的器件30的侧面透视图，其中具有如上所述压纹凸形USB连接器70。众所周知的是，在卡表面上压纹导致它的有效高度增加，例如这可通过ATM机器来开发，该机器允许略微厚的卡插入，而不允许该卡在压花表面朝下时插入。增加USB连接器厚度同时不损害卡狭窄外形的替代方法是，对USB连接器70的区域压纹，从而产生压纹部分71。该压纹部分108可利用标准的卡压纹装置形成。

优选的是，该卡31也可在ISO 7811 - 1规定的标准压纹场所压纹，从而提供1.2mm数量级的最大外形。此外，该卡31也可承载磁条72，可利用标准磁条阅读器读取该磁条72。选择性地，该卡31可承载带有触头74的SIM阅读器，或者在它的体积内刚好承载智能卡模块75。这种智能卡模块75可以选择性地直接地或者间接地电连接到USB触头上。

图14为根据另外实施例的器件31的侧视图，其中该实施例具有用于输入ASCII信息的用户接口。该用户接口可包括完整或者减小的QWERTY键区78。按压的ASCII码可利用上述的显示器60（图10所示）显示。选择性地，该器件31可带有用于接收手写输入的触摸垫79。选择性地，该器件31可带有用于输入声音或者其他音频信息的转换器，例如用于声音命令的麦克风。该器件31可带有捕捉可见的或者红外线静止或者运动图像的照相机81和/或例如对器件空间运动敏感的加速表或者位置探测器的一个或多个传感器82。此外，该器件31可带有生物测定阅读器83，用于验证器件用户和/或提供数字签名，由此阻止器件的越权使用。在这种情况下，该器件31可用作生物测定验证令牌。此外，该器件31可具有例如压力传感器的传感器84，其中该传感器可用来称例如食物乃至人的物体的重量。可选择的是，该传感器84可以是能用来测量器件30装载其中的运输工具的温度，以便检验它的温度是保持在规定温度范围之内。可选择的是，该传感器84可以是一组用于测量皮肤电反应（Galvanic

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Skin Response）的二电极。

图15a为根据发明实施例的薄USB插座25的俯视图，而在图15b中所示为侧面剖视图。该USB插座25包括具有开口91的薄壳体90，其中该开口91带有电连接到电路93上的多个触头92。该开口91设计成凸形USB连接器20可插入到其中。该壳体90可以是这样的一种卡，该卡象尺寸与信用卡或者薄电子仪器类似的元件。该触头可以是4 USB触头、5微型USB触头或者类似触头。

通过这种方式，该器件31可连接到插座25，同时不丧失它与标准USB插座的兼容性。

如图15b所示，触头沿着开口91的下部内表面布置，以便当插入开口91中时与在凸形USB连接器下部表面上对应触头啮合。可选择的是，另外一组类似连接器可布置在开口91内的连接器的上部内表面上。因此，在任意两种方式，器件30的单侧凸形USB连接器（在此图中未示出）都可插入薄USB插座25的开口91内，同时与在其中的一组上部或者下部触头电接触。

此布置要求任何一项插座25或者器件30都具有电源。这样一个布置可用于交换信息，这些信息例如为触头细节、图片或者任何其他的电子文件。例如，代替利用媒介计算机从在主要器件上一个盘把信息传送到另一个盘上，信息可通过把它们彼此连接而在两个器件之间直接地交换。

该插座25或者器件31可具有例如显示器或者按钮的用户接口，便于信息的传送。

图16为大略地示出了模块化计算机95的分解图，其中该模块化计算机95由许多使用多个根据发明卡模块的电子模块部件形成。上部卡模块96具有连接到中央卡模块98的凸形连接器97，而该卡模块98兼备插座99和连接到下部卡模块102的插座101上的凸形连接器100。

该上部卡模块96可带有显示器和键区，例如用作可访问的用户接口，同时该中央卡模块98可带有闪速存储器或者硬盘，以及下部卡模块102可带有CPU和凸形USB连接器103。显然，部件的任何适当的分布是同样可行的。该USB

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连接器103可以是对应于图2a和2b所示USB连接器20的双侧USB连接器。或者它可以是对应于图3所示的USB连接器34或者34的单侧USB连接器。

优选的是，该连接器嵌入它们的相应模块内，不过它们可通过例如带状电缆联接到那里，允许外部模块的外部联接和解除联接。该连接器可在电子和机械上连接模块，并还可在相邻模块之间传送电压和/或数据。通过这种方式，一个或多个连接器可用于从外部电源提供电压，用于对一个或多个模块内的可充电电源再充电。

如果希望的话，模块化计算机95可制造得足够紧凑，以致于它可在预先装配后被载运，或者可选择的是，每个模块可单独地载运，例如在钱包或者口袋内，用于在实际利用前随后组装。这种模块结构允许每一模块被单独地替换或者升级，并允许用户只载运用于特定情况的选择模块，就象当一个人在假期时载运蜂窝调制解调器。通过这种方式，可装配不同的模块，以形成不同的产品，例如Lego®，从而用户只取需要构成特定最终产品的那些模块。Lego是丹麦公司LEGO A/S的注册商标。例如，如果器件的唯一需要功能是能够计算机和显示器数值计算的话，则wifi模块可随之布置。

图17为卡形器件31的俯视图，其中具有带USB触头104的凸形USB连接器103。该USB连接器103可具有4个标准USB触头或者5个微型USB触头，以便能够与标准USB插座或者与标准的微型USB插座电联接。因此，例如连接到USB卡的那些标准USB插座可用于与其他器件通信或者把电能提供给其他器件。该器件31可以是这样的一种卡，该卡象尺寸与信用卡或者薄电子仪器类似的元件。

图18为根据本发明另一个实施例的具有电路32的卡形器件31的俯视图，其中压纹105与凸形USB连接器103的触头一样形成在卡31相同表面上。

压纹增加了器件31的厚度，但仍然允许它插入ATM读卡机中，如上所述，这允许略微厚的卡插入，而不允许该卡在压花表面朝下时插入。同时，压纹105可覆盖USB连接器103，从而它的外形由此形成充分高，以通过弹性叶片11（图2c所示）保持在USB插座内。该卡也可带有磁条72，因此为卡提供双重功能：作为规则的ATM卡和作为具有USB连接器的智能卡。

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图19为根据本发明另一个实施例的卡形器件30的俯视图，其中该器件30具有平面衬底31，经由连接到耳机110电绳112的USB插座111（构成凹形USB连接器），从该平面衬底31伸出可联接耳机110的凸形USB连接器20。电子声音信号通过在器件30中凸形USB连接器20的触头c2和c3传送到USB插座111上接收触头r2和r3。该电信号然后以标准方式转换为声信号。带有USB插座111的耳机110可连接到任何其他的这种器件上，其中该器件具有USB凸形连接器并具有通过它的USB触头发送电子声音信号的装置。例如，便携式音频器件正受到欢迎，其中该器件一般地包括记忆棒，音频文件（例如MP3兼容文件）可从联接到器件的凸形USB连接器上的计算机下载到该记忆棒，而该记忆棒具有用于联接到耳机的插孔。图19所示的器件30可复制此功能，而不需要规则的插孔，因为耳机110除了能直接地联接到器件凸形USB连接器20外还具有凹形USB连接器。当然，应当理解的是，在图中所示器件30中的USB插座外，对于器件30还可以具有USB插座，同时互补凸形USB连接器联接到耳机上。

图20为根据本发明实施例的示出了身份卡31的俯视图，其中卡所有人的照片115或者任何其他的代表图像或者图形印刷在卡31的外表面上。例如，该卡可以是卡所有人照片在其上的MP3播放器。或者卡所有人可选择展示他或者她最喜欢的歌手的图片。该卡可制作得足够薄，以利用标准卡打印机116在产品后期印刷。

图21为根据本发明另一个实施例的器件30的平面图，其中该器件30为具有插座121的徽章支座120形式，该插座121适合于坚固地容纳带有所有人图像115的用户卡31的USB连接器20。通过这种方式，即使当所有人颈部周围磨损时，该徽章支座可把卡31保持较长的时间间隔，其中磨损是由于在卡31的USB触头和插座121内表面之间的摩擦而导致。这种卡31可作为雇员标签使用，其中该标签可释放地联接到标签支座120上，而该标签支座120可附着于一个人的衣服上或者穿在人身体上。可选择的是，该卡31可释放地联接到支座或者插座122上，从而一旦联接时两者宽度和高度的结合与标准信用卡的近似。

图22为根据本发明另一个实施例的USB耳机125的平面图。USB耳机125具

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有空心壳体126和一对便携式超薄型耳机，其中该便携式超薄型耳机包括相应的蜂鸣器127、128，每个蜂鸣器由相应的海绵129、130保护。该蜂鸣器通常联接到柔性电缆131上，其中该柔性电缆131能缩进到USB耳机125的空心壳体126内。该USB耳机125还包含USB插座132，其中该USB插座132电连接到绳131的端部，并可连接到标准或者薄型凸形USB连接器20上。在使用中，蜂鸣器127、128可抵抗弹簧133提供的偏压力从壳体退出，而USB插座132可联接到外部器件的USB连接器上。在使用后，可致动释放按钮134，以便在弹簧133作用下把绳131与蜂鸣器一起缩进。

海绵129、130可折叠成非常小的厚度，从而允许蜂鸣器和相关部件嵌入壳体内，整个器件的尺寸设计成装入一个人的钱包内。应当理解的是，尽管如图中所示器件中的USB插座，对于器件还可以具有凸形USB连接器，用于联接到外部器件的USB插座上。

图23为根据本发明另一个实施例的器件30实施例的平面图，其中该器件具有从平面衬底31伸出的USB连接器20，而该平面衬底31包含印刷区域135和存储器136。存储器136包括第一部分137，该部分与内容数据有关，并由软件或者硬件写保护而不能由用户除去。存储器136的第二部分138为自由空间而可再写和可消除。内容数据可以是编目数据、行程数据或者任何其他的类似数据。该数据可包括例如超级文本标志语言（HTML）、PDF、Microsoft®、Word、TIF或者任何其他的本文或者图形格式、声音或者视频数据或者其任何混合数据。微软是美国雷德蒙微软公司的注册商标。

该器件30可用作希望散布其产品或者服务目录的公司的广告工具。这种公司可需要用户保留该器件。由于器件是可以再使用的，因此该用户可用它把文件存入其存储器。印刷区域可展示公司信息，用来把公司商标时刻保留在用户的心里。

图24为根据本发明另一个实施例的卡形器件30的平面图，其中该器件30具有可充电电池47和由电路32构成的同步通行字发生器，该通行字发生器用于产生可由显示器件140显示的一次通行字器件，而该显示器件140可由遥控

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验证服务器（未示出）接受。

该器件30包括可用于执行以下一个或多个功能的双侧凸形USB连接器20:

a） 经由调节器141对电池47再充电。

b） 使通行字发生器与远程服务器或者通过USB数据触头与PC同步。

c） 使器件初始化。

d） 改变器件的加密键字。

该器件30既可作为本身可充电同时连接的USB验证令牌也可用作用户可把键字输入到例如PC的另一个器件中的通行字发生器。

图25a和25b分别示出了根据不同实施例的器件30的上部平面图和剖视图，其中该器件具有从平面衬底31伸出的双侧凸形USB连接器20。该凸形USB连接器20包括在相对表面A和B（如上参考图2a和2B所述）上具有第一接触条21和第二接触条23的连接器（印刷电路板）PCB 145。该连接器PCB 145在卡片区域外部具有一个较厚部分，在图中大致示出的厚度为H，并在卡片区域内具有一个较薄部分，在图中大致示出的厚度为h，从而如果h和H相同时则使在图中大致示出的卡主体内的塑料边缘m比应该获得的较厚。需要注意的是，大略地示出的尺寸H、h和m是在纸张的平面上，但实际上它们表现的尺寸与纸张平面垂直。因此，尺寸h是如此以至当在卡片区域内较薄部分在两侧用层压覆盖时，结合厚度是在H区，从而伸出部分大体上与层压卡齐平。如在图25b中清楚地所示那样，连接器PCB145的一部分固定在衬底31的区域内，以便减少由于机械力导致的卡脱位的危险，其中该机械力产生于USB插座的连接和拆开上。该接触条21和23经由相应的导线146和147电连接到主要PCB148上。该接触条21和23可以是结合到连接器PCB145上的薄PCBs。接触条21和23的厚度x与在连接器PCB 145上、下表面上层压的相应绝缘层149和150厚度近似，然而当然不覆盖伸出的接触条21和23。通过这种方式，连接器的外部即伸出部分明显比连接器PCB145厚度大，不过大体上与层压层149和150的外表面齐平。

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另一个选择是，当一个PCB结合到另一个顶部上或者另一个内部时，把连接器PCB145直接地焊接到主要PCB 148上，由此不需要连接线146和147。另一个选择是利用柔性或者刚性PCB碎片把PCB 145结合到PCB 148上。另一个选择是把PCB145制造到PCB148上，作为一个组合的柔性-刚性PCB，而在这样情况下PCB145的触头侧可以是刚性部分，同时PCB148是柔性部分。可选择的是，PCB145还可以是柔性和半柔性。该PCB 145可包含放置在它的体积内（嵌入）的部件，例如ESD保护单元和二极管。该主要PCB148支撑CPU 151、可选择的闪速存储器152以及焊接到PCB 148上的选择性的又一个电子器件153。通过层压过程，所有这类部件加上PCB 145内部由绝缘层149和150覆盖。

图26为发明另一个实施例的器件30的俯视图，其中该器件30具有用于显示可视信息的选择性的显示器。第一显示器为发光二极管显示器160，该发光二极管显示器160指示在MP3器件上播放的轨道。另一种可能的显示器是字母数字式发光二极管显示器161，该显示器可显示轨道名称或者播放轨道的歌词，其中该歌词优选的是与播放轨道同步。该显示器可以是静态或者滚动方式。另一显示类型为可显示任何字母数字或者图形信息的图形显示器162。该显示区可跨越卡的较大部分，借此产生相对较大的显示区。

选择性地，该器件可带有激光指示器163，该激光指示器163可通过嵌入圆顶开关164打开或者关闭。

图27用插图示出了根据发明另一个实施例的器件30的俯视图，其中该器件30为便携式音频播放器形式，例如为信用卡格式的MP3播放器。该器件30具有带三个用途的双侧凸形USB连接器20：

1. 与例如PC的另一个器件通信，用于下载音乐文件；

2. 连接到再充电单元；以及

3. 音频连接到如上参考图22所述的USB耳机125。

该器件30包括可选择的LCD或者LED显示器165，并嵌入例如播放/暂停、模式、音量增加（+）、音量减小（-）的控制按钮166。该器件可带有替代性

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的图形167，该图形可在零售商店中选择或者经由因特网下载，例如：

1. 器件买方的照片

2. 器件买方朋友的照片

3. 器件买方宠物的照片

4. 最喜欢的歌手

5. 风景

该器件30可把非可再写性或者可再写性影集存储到其存储器内。音乐经销人可使用该器件作为自我演奏音乐集，或者自我表演照片或者录像集。用户可在零售商店选择影集以及通过因特网下载，并利用标准卡打印机把该影集图形印刷在卡上。

图28为根据当前发明另一个实施例的器件30的俯视图，其中该器件30具有能探测该器件30是否从所有人占有中移开的传感器170，在图中示出它正被从用户的口袋171中取出的情况。一旦在口袋内，该器件可切换至睡眠方式或关闭。一旦接通，该器件开始发送RF信号172。类似地，当未装入雇员的徽章夹或者当平放在表面时以及反之亦然时，该器件可关掉，由此节约器件的电流消耗。

图29为示出了根据发明另一个实施例的一对器件30a和30b的俯视图，其中该器件3适合于相互通信。两个器件分别带有：

双侧凸形USB连接器20a和20b。

连接到相应线圈天线176a、176b的射频模块175a、175b。

USB适应插座177a、177b，可做得足够薄以能够使双侧凸形USB连接器20a和20b插入。

每个器件可具有USD闪速驱动功能、MP3播放器功能、相册功能或者类似功能。至少一个器件需要具有例如电池47的电源。该器件30a可通过把连接器20a插入USB适应插座177b内而连接到器件30b，由此允许：

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a） 在两个器件之间文件的传送；

b） 一个器件到另一个器件整个内容的传送；

c） 对另一个器件再充电；

d） 把电能供应到另一个器件；

e） 使用RF信号强度来估算器件31a和器件31b之间的距离；

f） 使用RF模块175a和175b来相对于器件30b对器件30a位置进行三角测量。

操作a - b还可以在以下情况下进行，即在没有通过利用RF模块175a、175b和天线176a和176b的RF通信物理联接两个器件时。每个器件具有适当的接口和显示器（未示出），以控制操作。

图30用插图示出了根据发明另一个实施例的柔性器件180，其中该器件180为手表或者例如手镯或者项链的带有电路181和USB连接器182的悬挂物，而该USB连接器182嵌入在柔性带183一端。扣钩184可安装在带183的相对端，并且尺寸设计成容纳USB连接器182。当扣钩184与USB连接器182配合时，该电路181可适合于操作，同时该电路可包括用于与外部器件通信的通信电路。柔性带183可具有电接头，以后以能够使数据和电源在所述连接器182和电路181之间通信。

尽管已经描述发明的各种实施例，然而该描述不想把发明范围限制到陈述的具体形式，相反地，由于可包含在由附加权利要求书限定的发明精神和范围内，因此本发明意在覆盖这种替换方案、改型和等同物。

例如，尽管发明的许多特征已经描述，特别针对双侧USB凸形连接器，然而可以理解的是，它们还可应用到单侧USB连接器上。例如，在USB凸形连接器插入触头时阻止在USB插座触头之间短路的需要主要来自在两种情况都能把USB凸形连接器插入USB插座内。然而当单侧USB凸形连接可在两种情况都插入USB插座内时，就象在许多卡状应用场合中那样，此特征同样地有关。因此，例如，发明同样地预料的是这样的单侧USB凸形连接器，其中该单侧USB

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凸形连接器具有阻止把USB连接器插入触头时在USB插座触头之间电气短路的装置。

同样地，已经就卡状器件描述了许多器件，其中该卡状器件具有适合于装入钱包的平面衬底。然而，发明还预料相同功能可利用其他的结构实现。例如，许多器件可在disk-on-key型器件上实现，其中该器件可装入口袋或者戴在人身上，例如围绕身体颈部上，或者是具有一个或多个USB或者类似连接器的腕式器件。

在下面权利要求书中，FCCS连接器涉及任何适合于与"可柔软连接计算机系统"一起使用的连接器，用于表示任何允许器件连接到计算机上的接口标准。USB兼容连接器是这种连接器的实例，另一个实例是IEEE 1394标准。同样地，无论术语FCCS或者USB在权利要求书中用于何处，都用来包含USB兼容连接器和包含两个标准以及微型USB型连接器。

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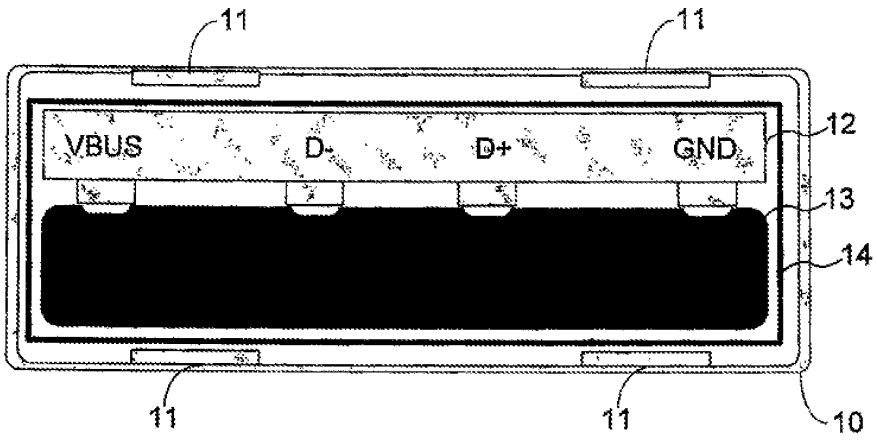


图 1

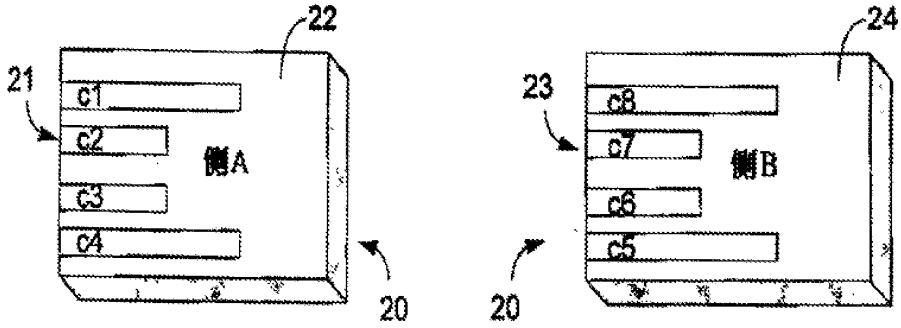


图 2a

图 2b

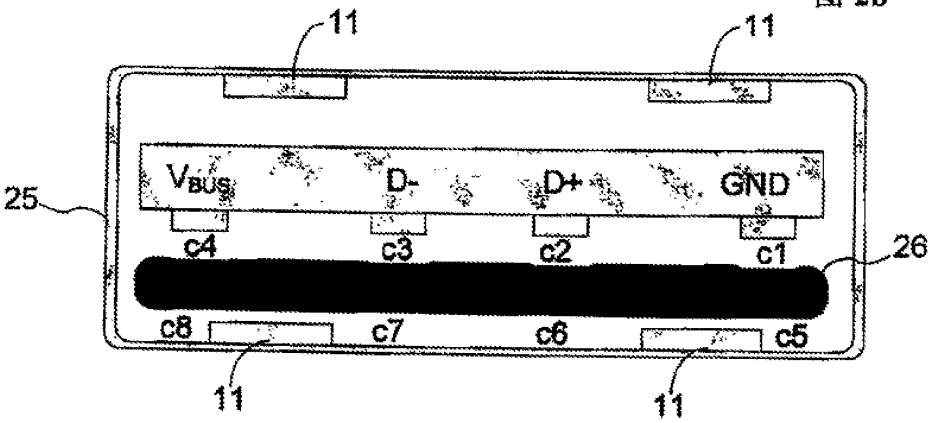


图 2c

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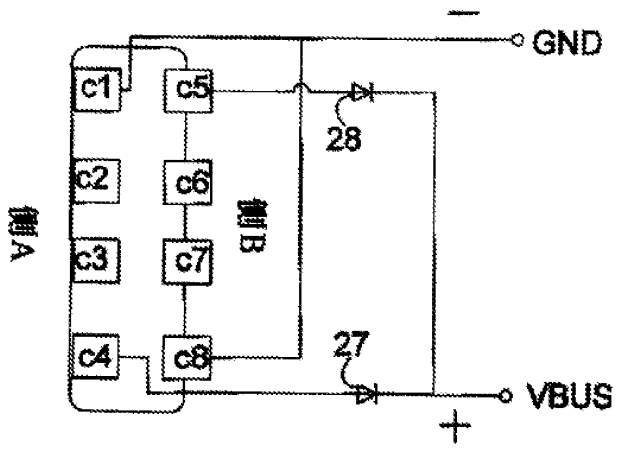


图 2d

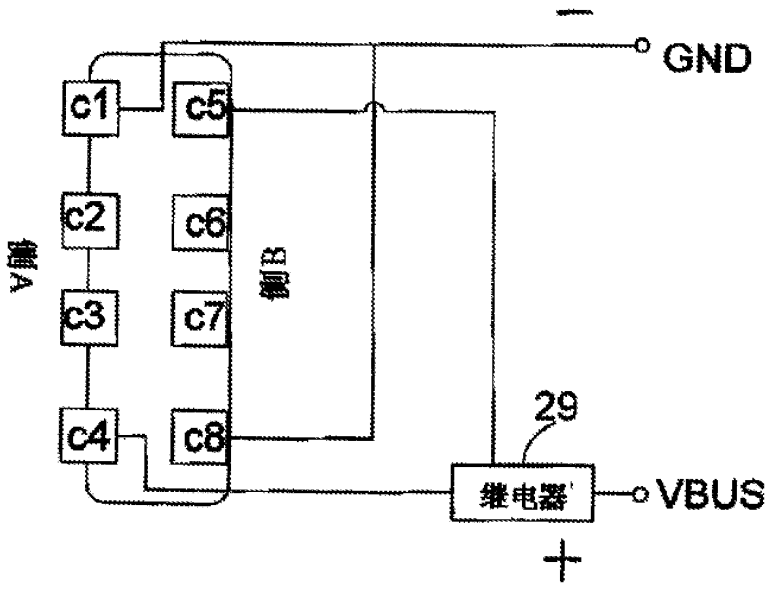


图 2e

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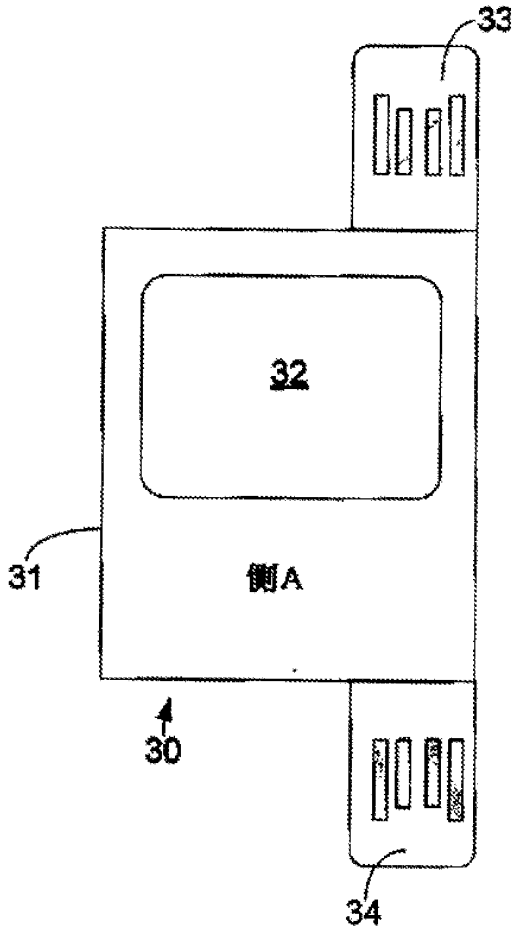


图 3

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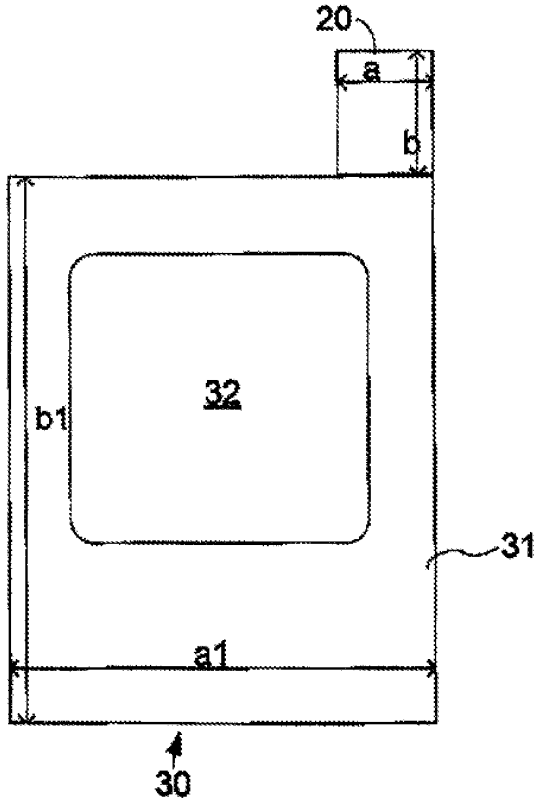


图 4a

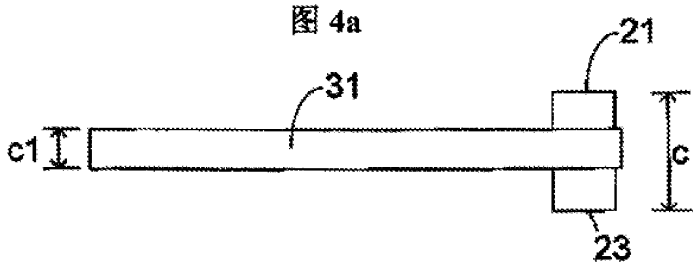


图 4b

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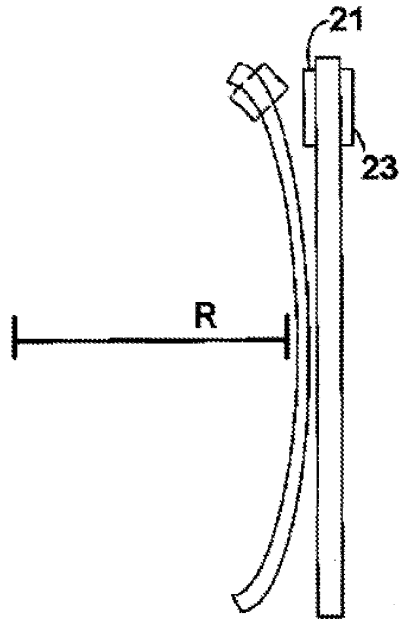


图 5

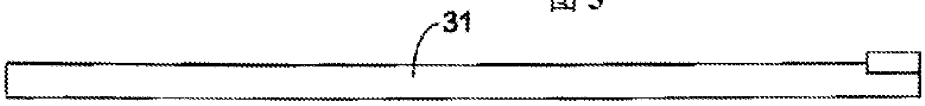


图 6a

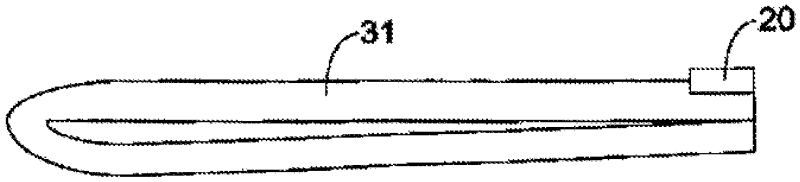


图 6b

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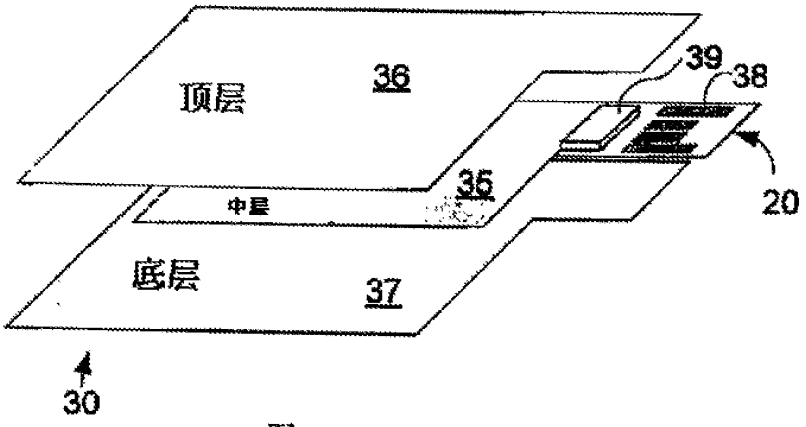


图 7a

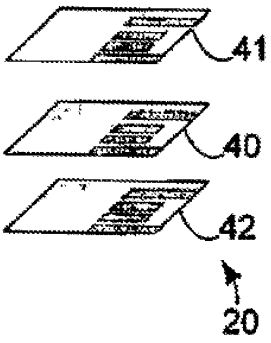


图 7b

Samsung, EX1019, p. 291

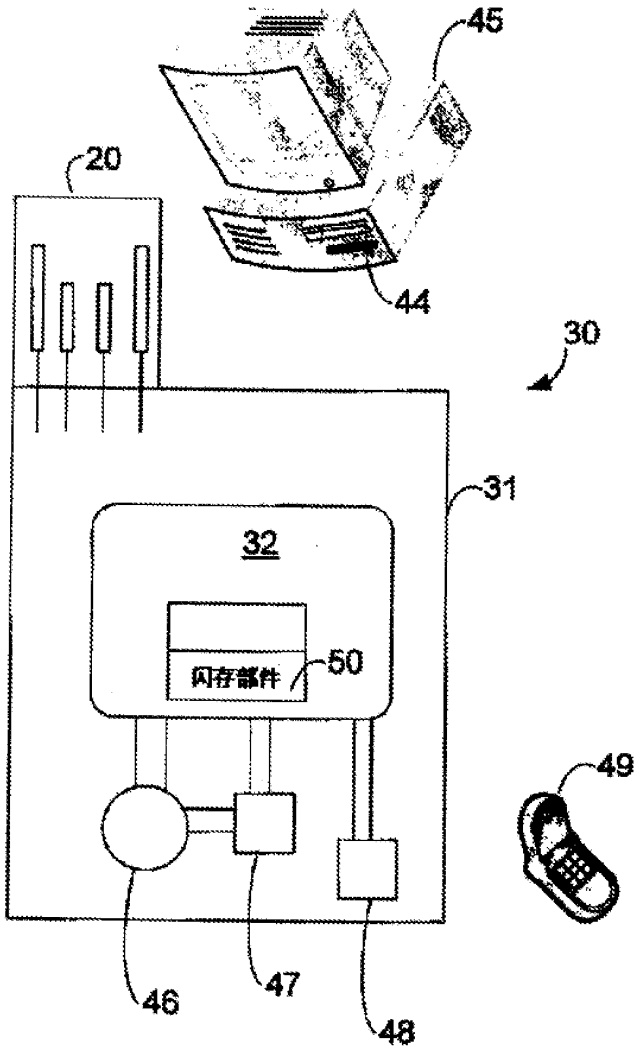


图 8

Samsung, EX1019, p. 292

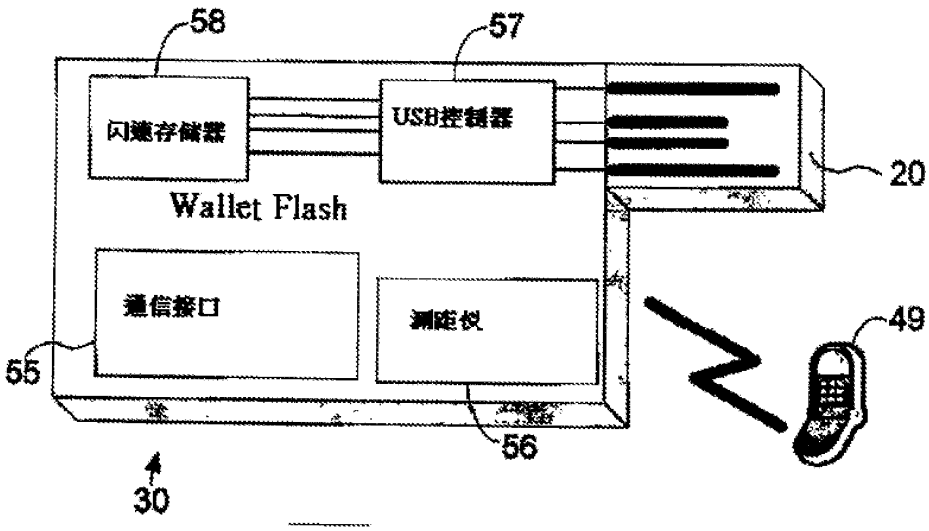


图 9

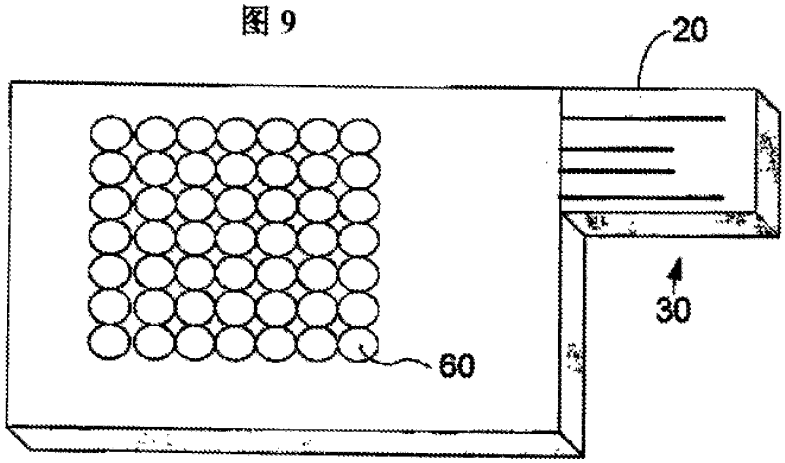


图 10

Samsung, EX1019, p. 293

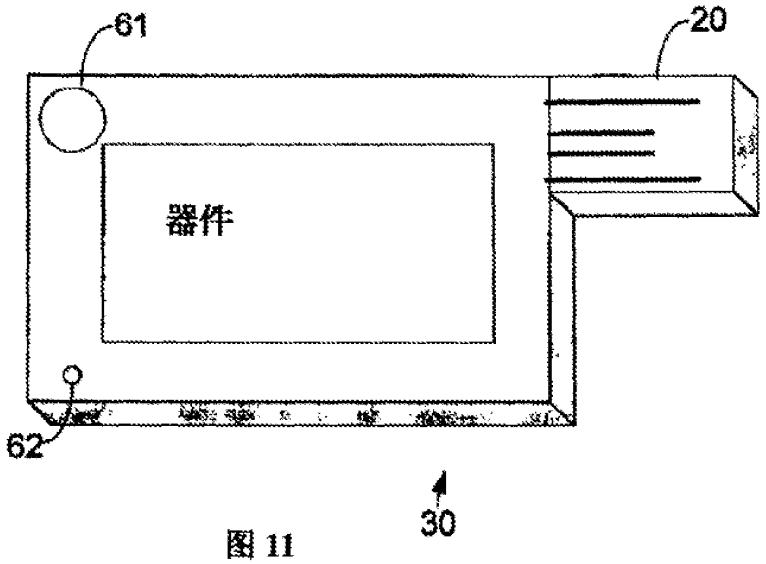


图 11

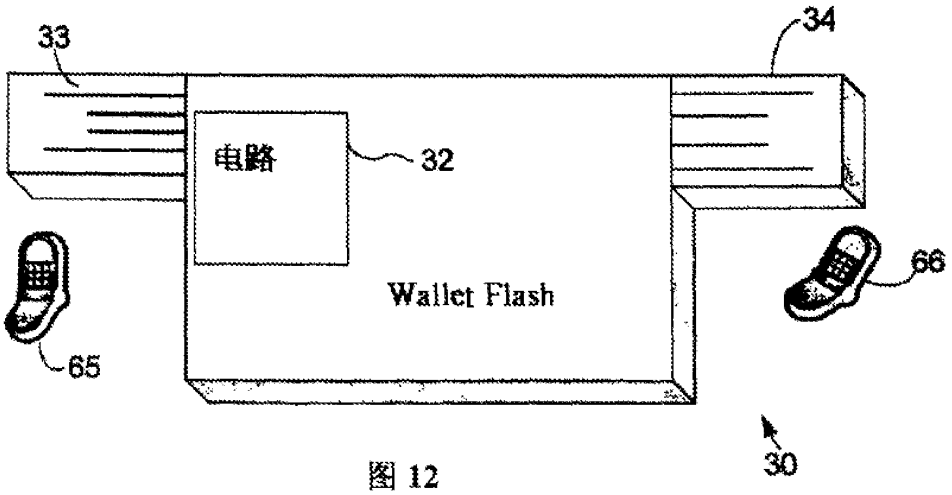


图 12

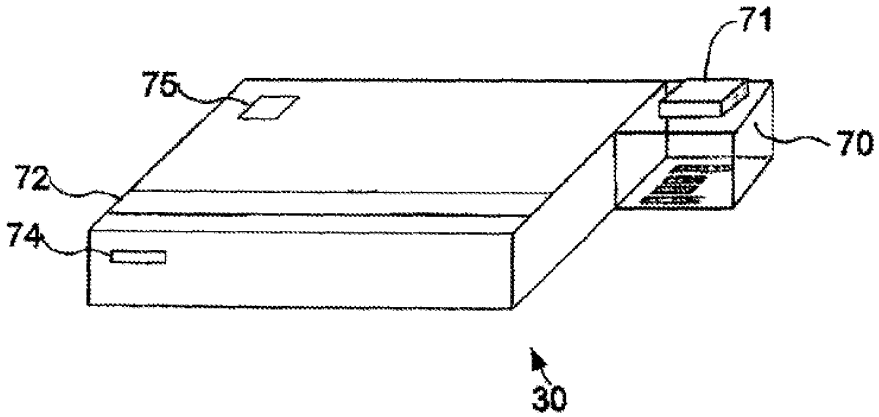


图 13

Samsung, EX1019, p. 294

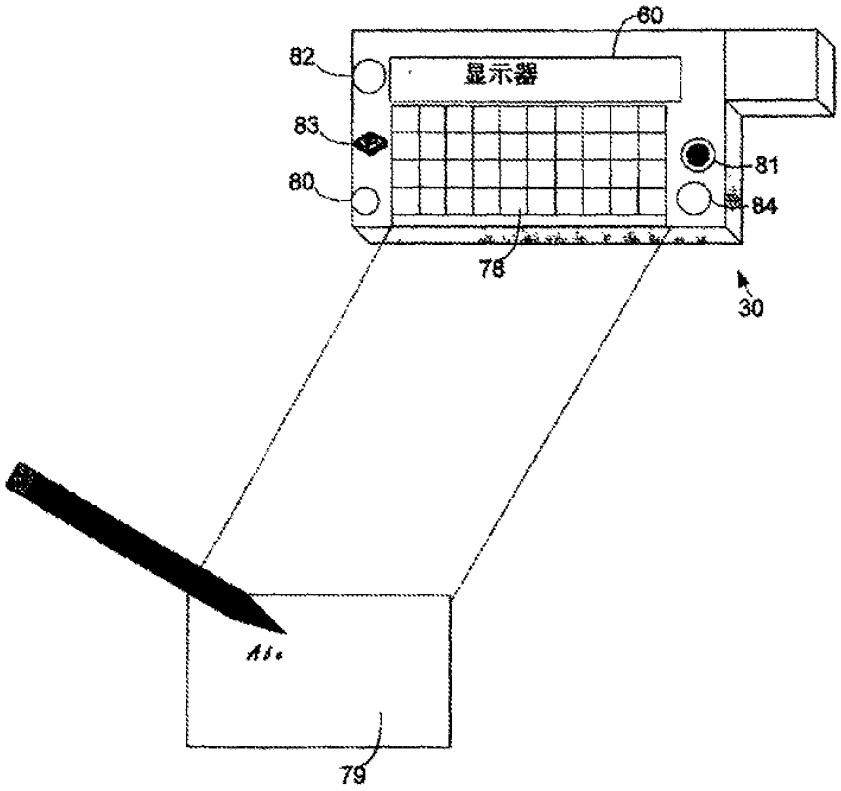


图 14

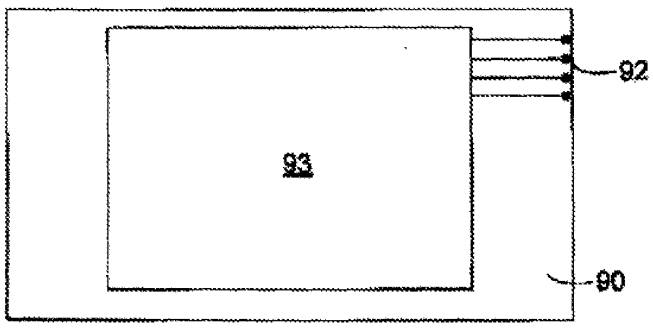


图 15a

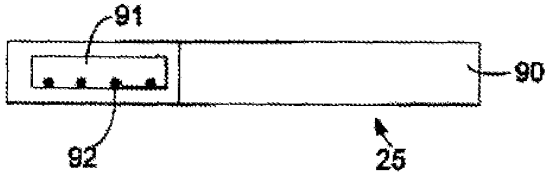


图 15b

Samsung, EX1019, p. 295

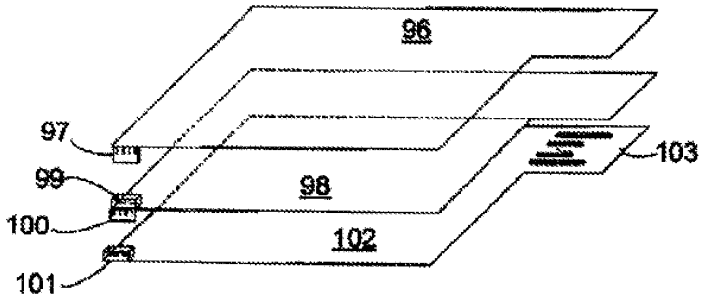


图 16

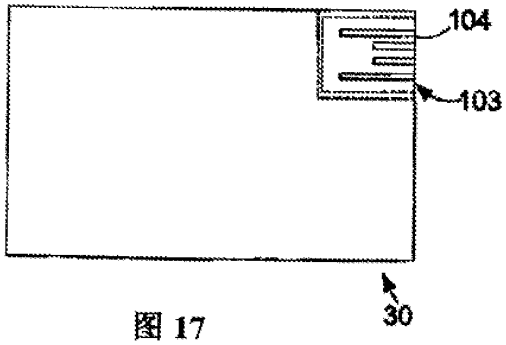


图 17

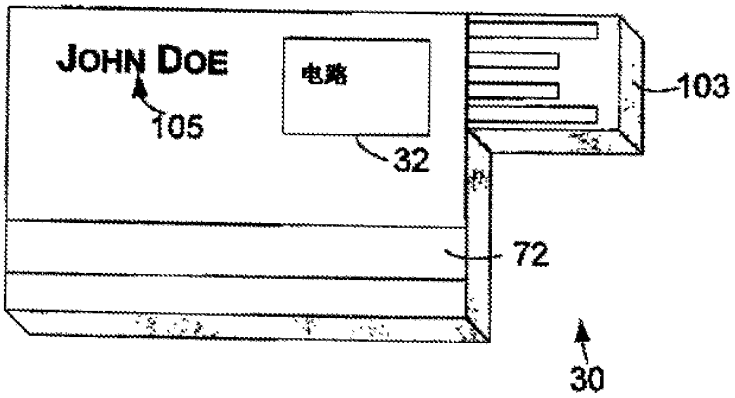


图 18

Samsung, EX1019, p. 296

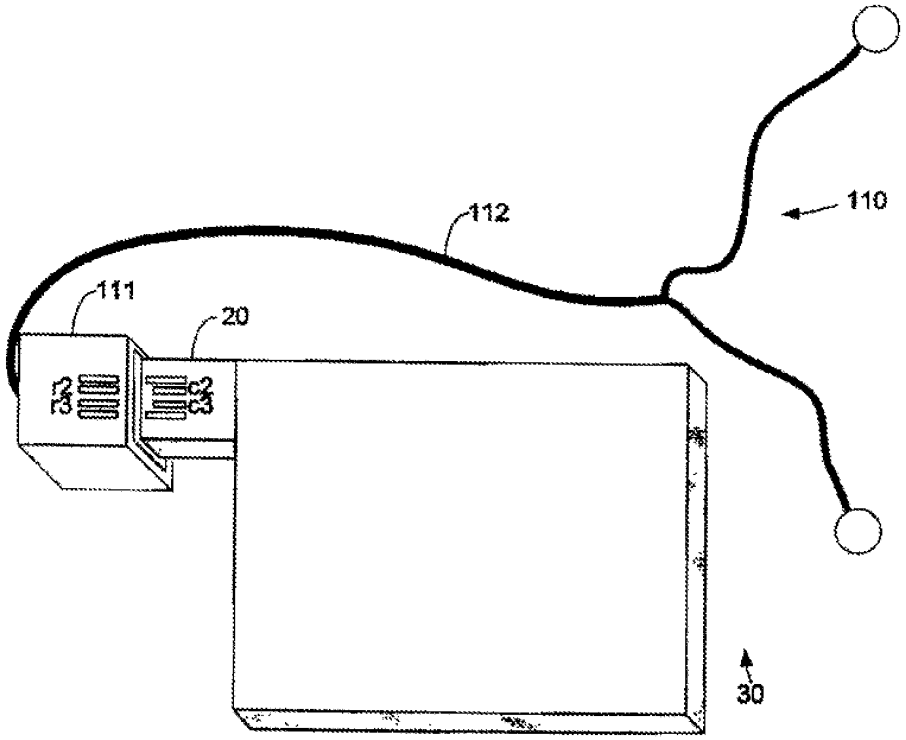


图 19

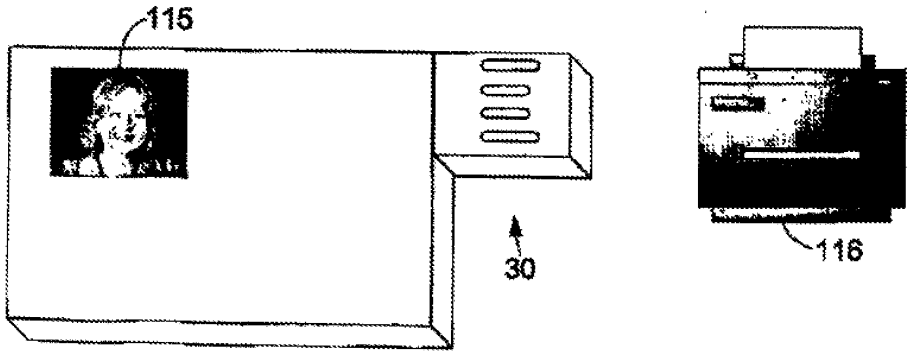


图 20

Samsung, EX1019, p. 297

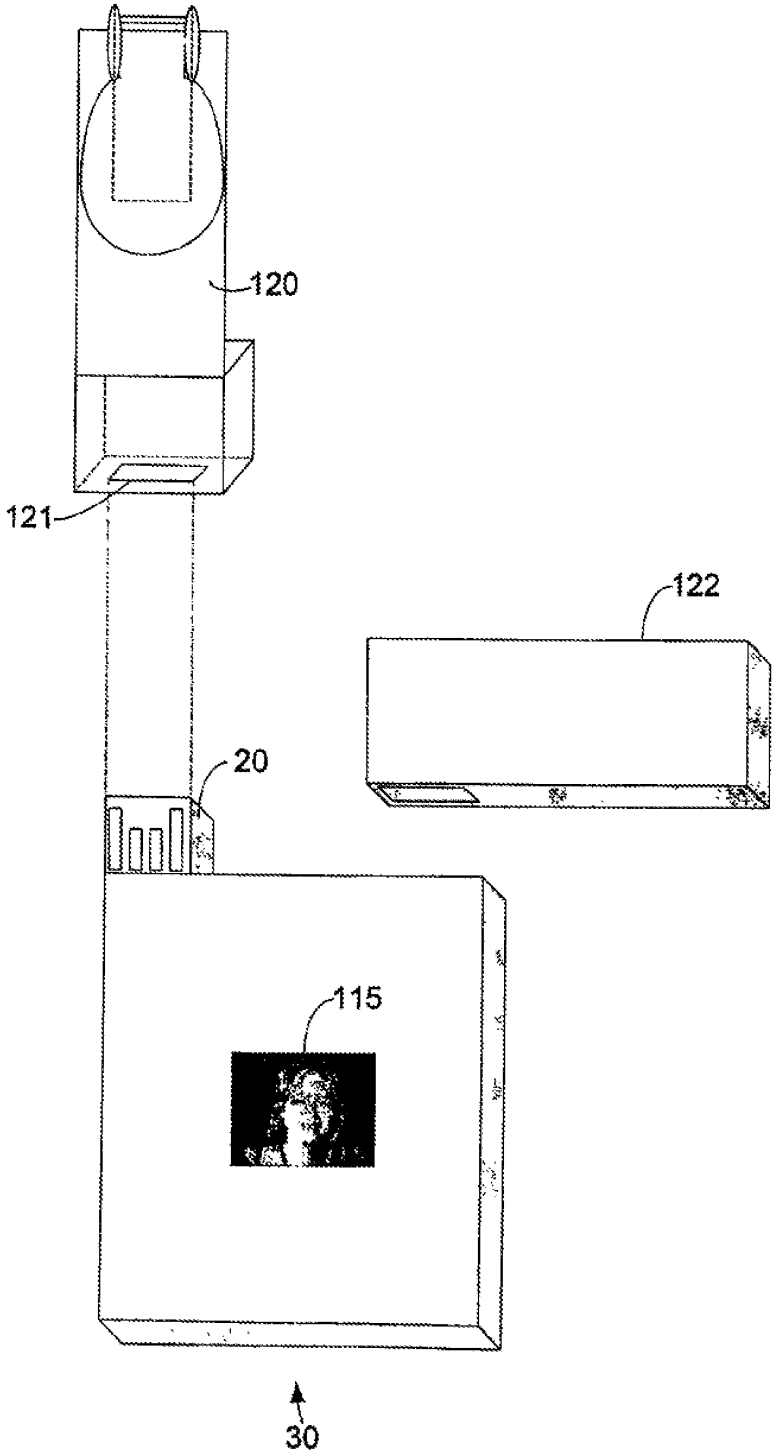


图 21

Samsung, EX1019, p. 298

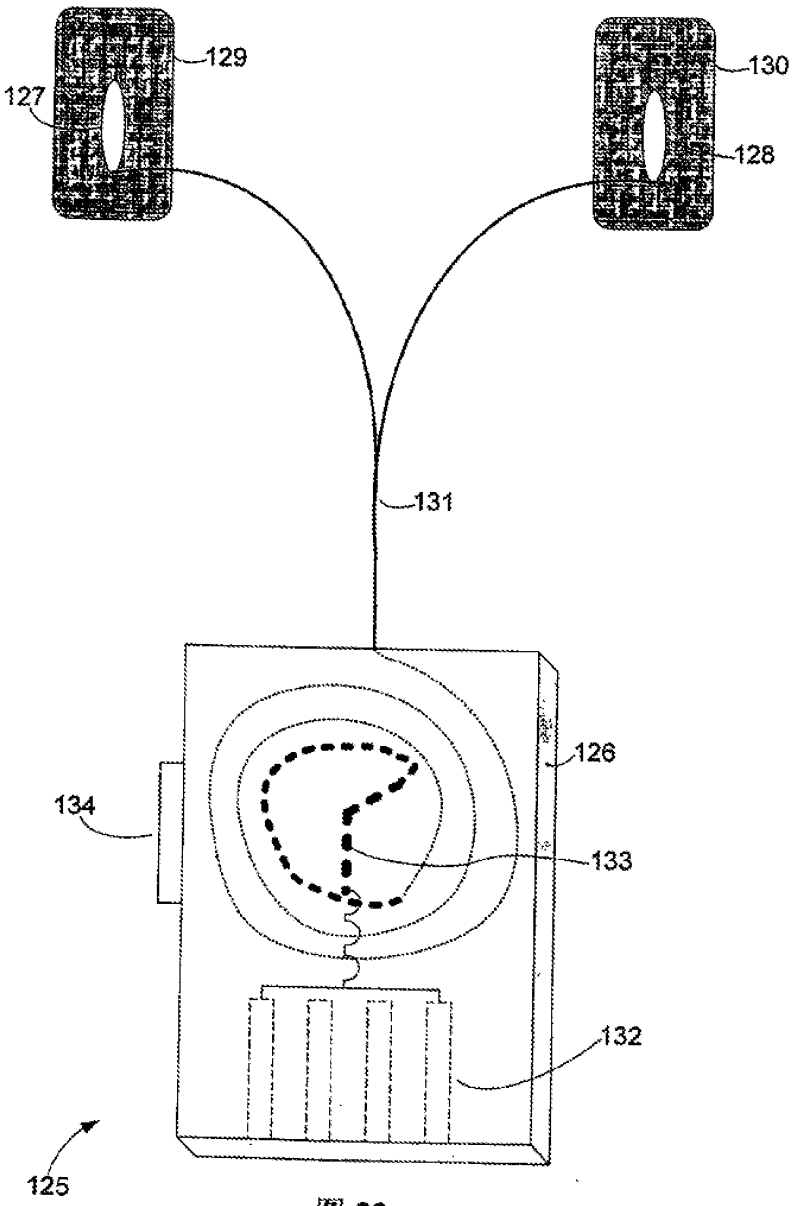


图 22

Samsung, EX1019, p. 299

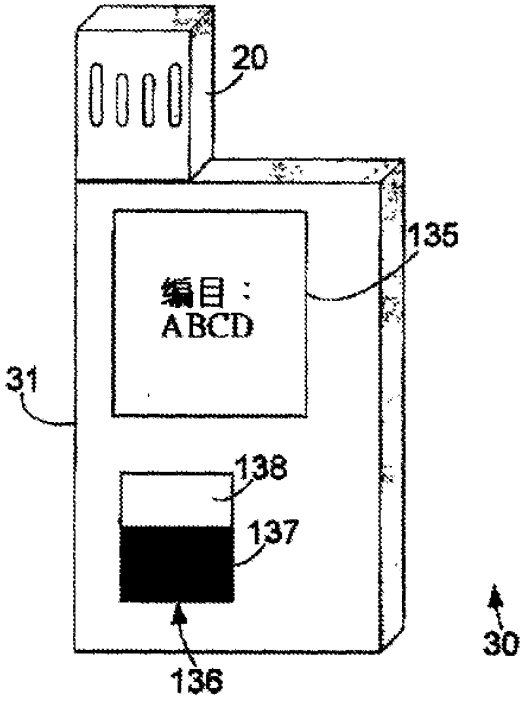


图 23

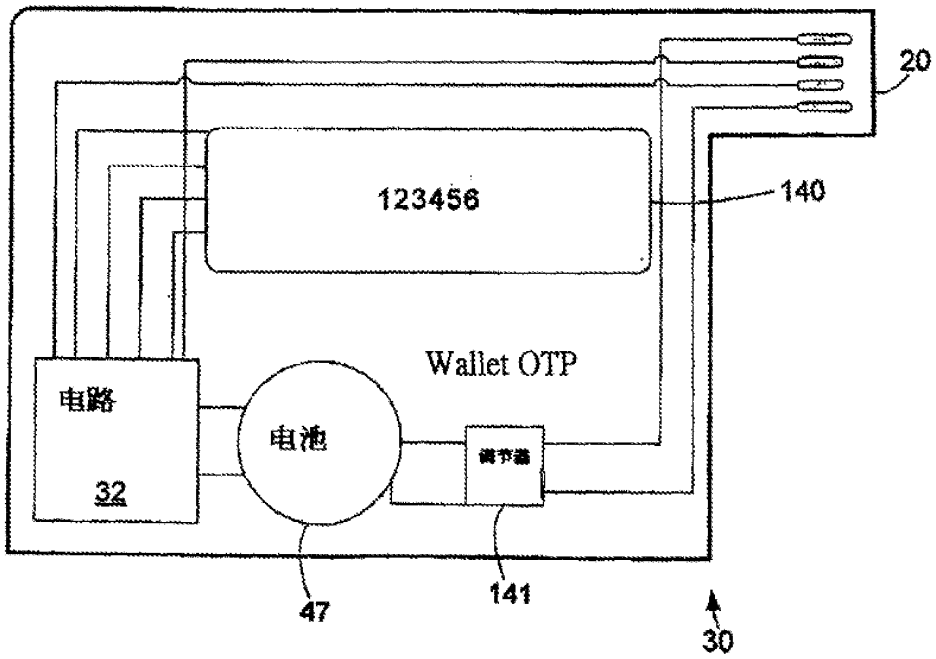


图 24

Samsung, EX1019, p. 300

上部平面图

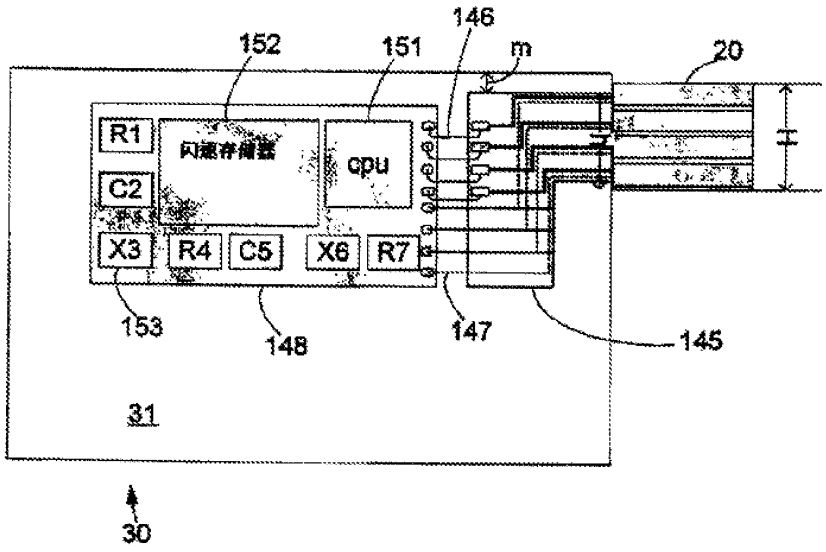


图 25a

剖视图

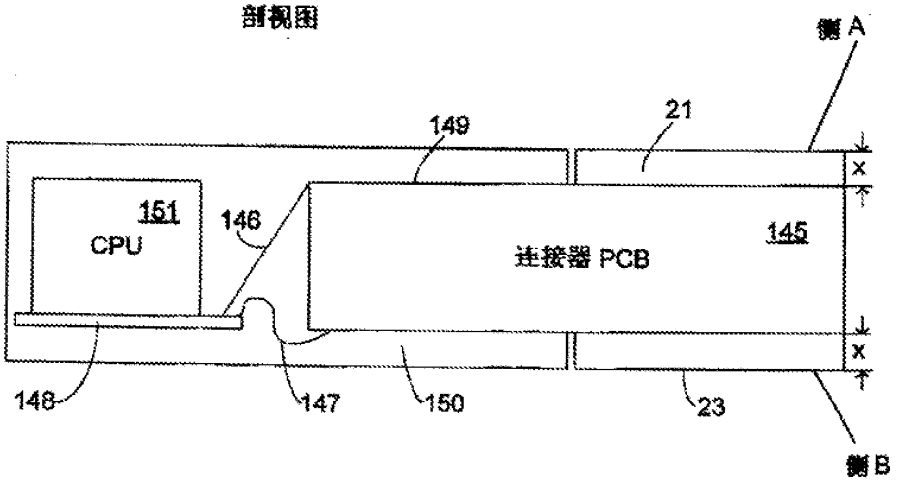


图 25b

Samsung, EX1019, p. 301

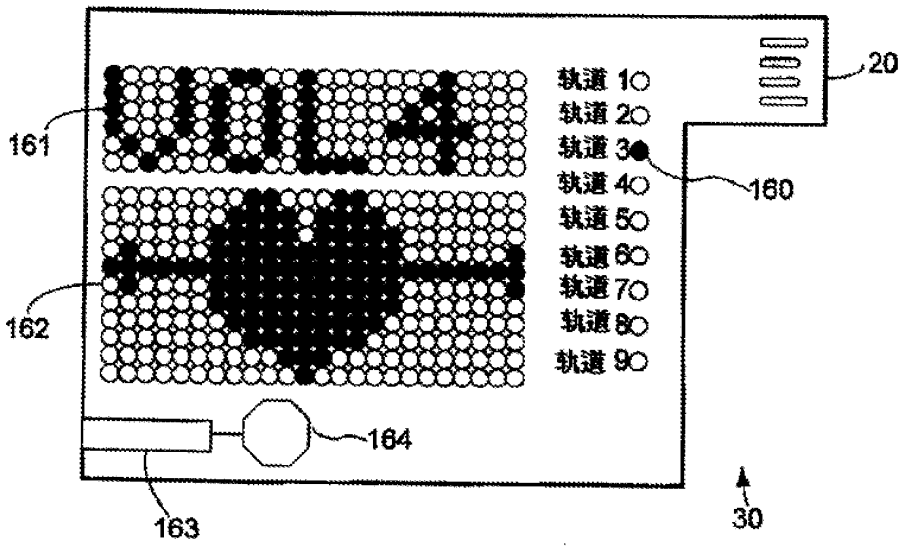


图 26

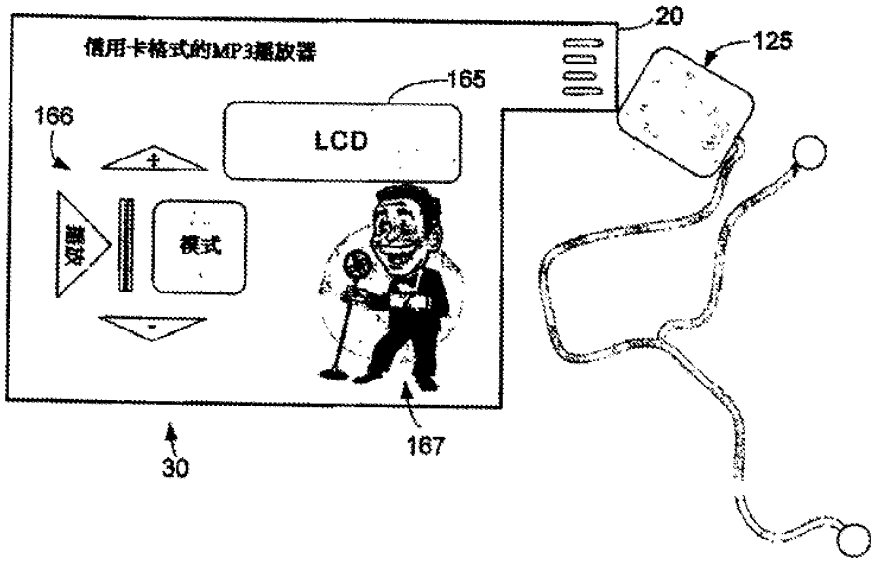


图 27

Samsung, EX1019, p. 302

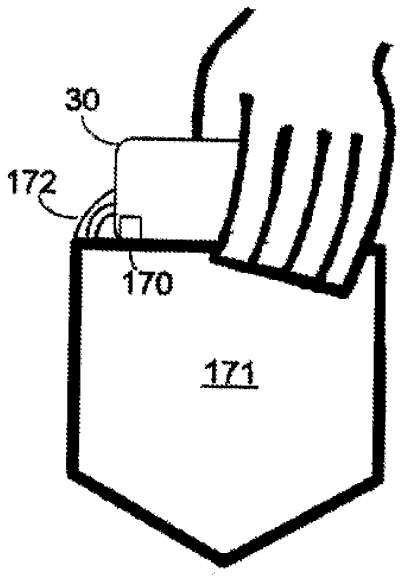


图 28

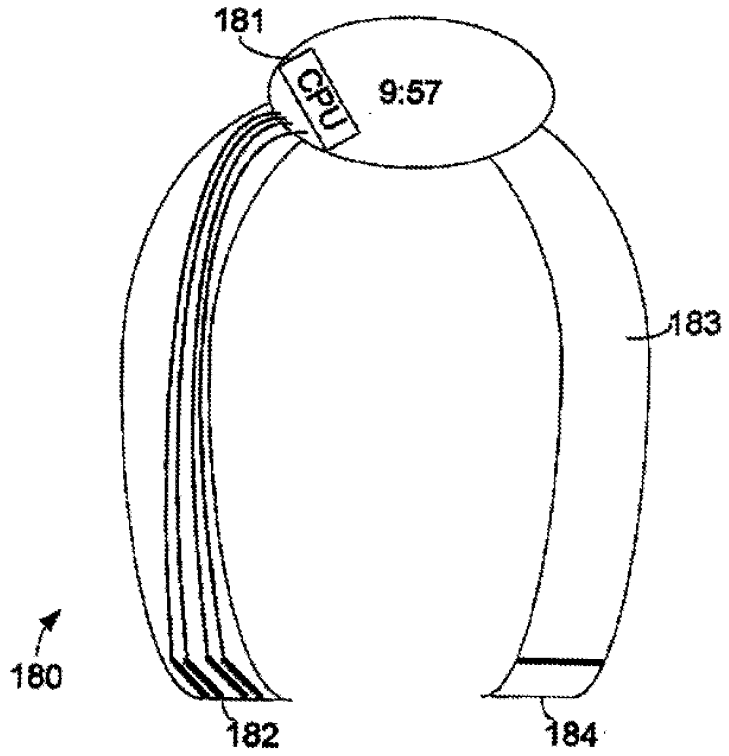


图 30

Samsung, EX1019, p. 303

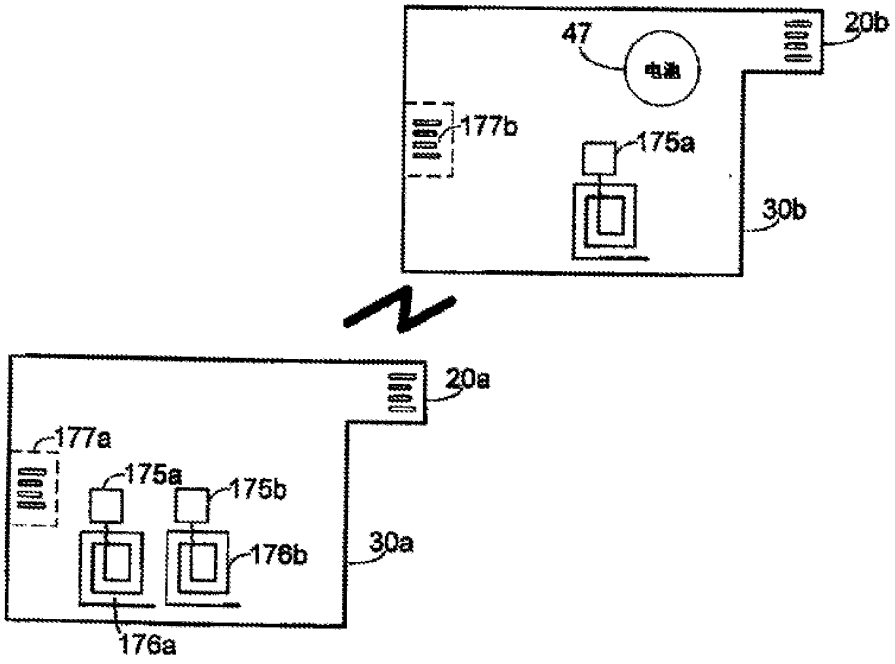


图 29

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Espacenet

CN2682660Y Electric connector

Applicants: FOXCONN KUNSHAN COMP INTERFACE [CN]

Inventors: CHEN WEIXING [CN],ZHAO GUANGMING [CN],ZHUANG QUAN [CN]

Classifications:

IPC ***H01R12/16;*** (IPC1-7): H01R13/629; H01R13/648;

CPC **H01R12/7088 (EP);** H01R12/716 (EP); H01R13/658 (EP);

Priorities: CN200320120351U 2003-12-06

Application: CN2682660Y 2003-12-06

Publication: CN2682660Y 2005-03-02

Published as: CN2682660Y;**US2005124217A1; US6964582B2**

Electric connector

Abstract

The utility model discloses an electric connector, comprising an insulating body, a plurality of conductive terminals which are held in the insulating body, and a shield casing which is covered outside the insulating body; wherein, the cross section of the shield casing is a circular arc transition shape which is parallelly extended in the middle towards both sides. The insulating body comprises a base part and a tongue plate which is forwardly extended from the base part, the conductive terminals are held in the terminal channels in the base part and the tongue plate, and the circular arc transition shape of the shield casing has powerful guidance quality and convenient butting.

[19] 中华人民共和国国家知识产权局

[51] Int. Cl[7]
H01R 13/629
H01R 13/648

[12] 实用新型专利说明书

[21] ZL 专利号 200320120351.3

[45] 授权公告日 2005 年 3 月 2 日

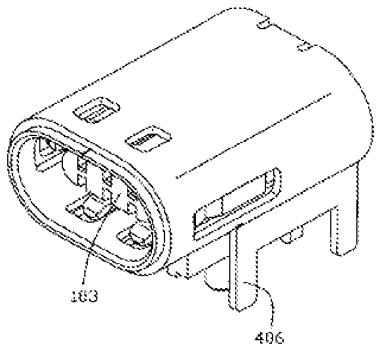
[11] 授权公告号 CN 2682660Y

[22] 申请日 2003.12.6
[21] 申请号 200320120351.3
[73] 专利权人 富士康(昆山)电脑接插件有限公司
地址 215316 江苏省昆山市玉山镇北门路 999 号
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权利要求书 1 页 说明书 4 页 附图 8 页

[54] 实用新型名称 电连接器

[57] 摘要

本实用新型公开了一种电连接器，其包括绝缘本体、收容于绝缘本体的若干导电端子及包覆于绝缘本体外的截面为中间平行延伸两侧圆弧过渡的遮蔽壳体，前述缘本体包括基部及自基部向前延伸的舌板，导电端子收容于基部和舌板内的端子通道内，其遮蔽壳体之圆弧过渡形状导向性强，对接方便。



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1. 一种电连接器，包括绝缘本体、收容于绝缘本体的若干导电端子及包覆于绝缘本体外的遮蔽壳体，前述绝缘本体包括基部及自基部向前延伸的舌板，导电端子收容于基部和舌板内的端子通道内，其特征在于：前述遮蔽壳体的截面为中间平行延伸两侧圆弧过渡的形状。

2. 如权利要求1所述的电连接器，其特征在于：前述绝缘本体的舌板的截面也为中间平行延伸两侧圆弧过渡的形状。

3. 如权利要求2所述的电连接器，其特征在于：前述舌板上、下表面分别形成有与舌板内的端子通道贯穿连通的狭长切口，端子上、下表面暴露于前述切口内。

4. 如权利要求1或3所述的电连接器，其特征在于：前述遮蔽壳体包括紧挨着的第一遮蔽壳体及第二遮蔽壳体，其截面均为中间平行延伸两侧圆弧过渡的形状。

5. 如权利要求4所述的电连接器，其特征在于：第二遮蔽壳体包括与其收容腔顶壁相连将收容腔後端封闭的后盖。

6. 如权利要求4所述的电连接器，其特征在于：前述绝缘本体的基部大致呈中间水平延伸两侧圆弧过渡的扁平柱体状，其内设有收容导电端子的若干端子通道。

7. 如权利要求4所述的电连接器，其特征在于：前述绝缘本体基部下方两侧分别设有一个安装座，于基部与安装座之间设有导引槽。

8. 如权利要求7所述的电连接器，其特征在于：前述安装座前端上表面形成有第一导引面和第二导引面，且两导引面间形成台阶状。

9. 如权利要求 8 所述的电连接器，其特征在于：第一遮蔽壳体的底壁外表面紧贴于安装座的第二导引面，第二遮蔽壳体底壁的外表面紧贴于安装座的第一导引面。

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电连接器

【技术领域】

本实用新型涉及一种电连接器，尤其是指一种导向性较强对接方便的电源连接器。

【背景技术】

随着电子工业的发展，使得消费性电子产品越来越多的进入了千家万户，小型化、集成化、多功能化成为当前消费性电子产品所共同的发展趋势，集成电路得到大规模的运用，附着于集成电路上的电子组件的密度也日益增加，由此导致的结果是电子设备要求外界输入更大的电力讯号，故为获得较大输入功率，消费性电子产品的电源连接器通常需要设置较多端子以传输较大功率，而现有的如美国专利公告第5,158,471号所揭示的电源连接器虽然具有较多端子，但其众多端子密集地排列于绝缘本体内，其导电端子周围无固持，端子定位性较差，且当其与对接连接器对接时，由于导向性不强，容易出现对接连接器与该电源连接器错位插接甚至使电源连接器端子弯折的情况，对接较不方便。

因此确有必要设计一种新的电连接器使其能满足端子定位性好且对接方便而且兼顾各种消费性电子产品需要满足小型化的发展趋势的要求。

【实用新型内容】

本实用新型的主要目的在于提供一种电连接器，其导向性强且对接方便。

为实现上述目的，本实用新型采用如下技术方案：一种电连接器，包括绝缘本体、收容于绝缘本体的若干导电端子及包覆于绝缘本体外的截面为中间平行延伸两侧圆弧过渡的形状的遮蔽壳体，前述绝缘本体包括基部及自基部向前延伸的舌板，导电端子收容于基部和舌板内的端子通道内。

与现有技术相比，本实用新型具有如下有益效果：其遮蔽壳体截面呈中间平行延伸两侧圆弧过渡的形状，导向性强，对接方便。

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【附图说明】

图1是本实用新型电连接器的立体分解图。

图2是本实用新型电连接器另一角度的立体分解图。

图3是本实用新型电连接器的绝缘本体的立体图。

图4是本实用新型电连接器的绝缘本体另一角度的立体图。

图5是沿图3中A-A线方向的剖视图。

图6是本实用新型电连接器的部分组装视图，其中端子已组装在绝缘本体上，且绝缘本体已被第一遮蔽壳体所遮覆。

图7是本实用新型电连接器的立体组合图。

图8是本实用新型电连接器另一角度的立体组合图。

【具体实施方式】

请参阅图1、图2所示，本实用新型电连接器1包括绝缘本体10、收容于绝缘本体10的若干导电端子20及遮蔽壳体30、40。

请参阅图3、图4及图5所示，绝缘本体10具有基部101，该基部101大致呈中间水平延伸两侧圆弧过渡的扁平柱体状，其包括前端面102及後端面114，在基部101内自後端面114贯穿前端面102形成有若干端子收容通道105，自基部101後端面114向前凹陷形成分别与前述收容通道105对应垂直连通的槽道115，且其中处于中间部位的槽道向前凹陷的距离大于其两侧的槽道向前凹陷的距离。由该基部101的前端面102向前延伸出一舌板103，该舌板103大致也呈中间水平延伸两侧圆弧过渡的扁平柱体状。前述基部101的收容通道105自前端面102进一步向前于舌板103内延伸至邻近舌板103前端处，于舌板103上、下表面与前述每一收容通道105对应处分别形成有狭长切口104，前述切口104分别与对应的收容通道105相连通，并于前述收容通道105与舌板103前表面间形成挡止块106。绝缘本体10的基部101下方两侧分别设有一个安装座107，该安装座107与基部底面通过连接部116一体连接，并于基部101底面与安装座107上表面间形成导引槽112。每一安装座107的前端上表面为台阶状，其包括前端的圆弧形第一导引面108及後端的圆弧形第二导引面110，第一与第二导引面108、110间形成台阶109。每一安装座107的下表面分别设有一个圆柱体定位柱111。两安装座107之间形成一矩形缺口113。

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请参阅图1、图2所示，每一导电端子20大致呈“L”形，其包括接触部201和垂直接触部201的安装部204，前述接触部201为水平状且具有上、下两接触面202、203，居于中间的端子的接触部201比居于其两侧的端子的接触部201短。

请参阅图1、图2所示，遮蔽壳体包括紧扶着得第一遮蔽壳体30及第二遮蔽壳体40，大致呈两端开口的扁平筒状，其截面亦大体呈中间水平延伸两侧圆弧过渡的形状，其包围形成一收容腔301，于收容腔301的底壁304后部开设有矩形缺口309，自第一遮蔽壳体30底壁304的前述缺口309前端部向下弯折形成有一片状定位脚310，于收容腔301的顶壁302及底壁304前部分别向收容腔301内凹陷并向前倾斜延伸均形成有一对弯折弹性臂306，于第一遮蔽壳体30的两侧壁（未标号）各形成有一个向收容腔内凹陷并向前延伸的弯折弹性臂307。

第二遮蔽壳体40包括呈扁平筒状的主体部400和与主体部400的上壁402相连的后盖405，该第二遮蔽壳体40的主体部400的截面也大体呈中间水平延伸两侧圆弧过渡的形状，其包围形成一收容腔401，其底壁403后部开设有矩形缺口404，于该缺口404的两侧边404′各向下延伸形成有两对片状定位脚406。

请参阅图1、图2及图6所示，装配时，将端子20的水平接触部201插入前述舌板103的相对应的端子通道105内，直至其每一端子接触部201的前端抵靠于前述舌板103前端的挡止块106上，端子20的安装部204对应收容于绝缘本体10的槽道115内并向下延伸出绝缘本体10安装座107的底面以焊接于电路板（未图示）上。可以看到前述每一端子20的上、下两接触面202、203恰好分别暴露于绝缘本体10舌板103上、下表面的切口104内。

完成上述步骤后，将绝缘本体10与第一遮蔽壳体30相结合，请配合参阅图6所示，将第一遮蔽壳体30组装于绝缘本体10上时，第一遮蔽壳体30矩形缺口309的两边309′插入绝缘本体10基部101底面与安装座107间的导引槽112内，第一遮蔽壳体30两侧壁的弹性臂307夹持于绝缘本体10基部101的两侧壁，第一遮蔽壳体30底壁304外侧也紧贴于前述绝缘本体10安装座107前端上表面的第二导引面110，前述第一遮蔽壳体30底壁的定位脚310恰抵靠于绝

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缘本体10两安装座107间的矩形缺口113的后端。

请参阅图7、图8所示，将第二遮蔽壳体40组装于前述第一遮蔽壳体30外，该第二遮蔽壳体40的底壁403前端外侧紧贴于绝缘本体10安装座107的第一导引面108上，其底壁403矩形缺口404前端部恰抵靠于第一导引面108与第二导引面110间的台阶109上，最后将后盖405向下弯折至与第二遮蔽壳体40后端面平齐处。端子20、绝缘本体10及第一遮蔽壳体30的组合体部分收容于第二遮蔽壳体40的收容腔401内，整个组装完成。该电连接器1底部的定位柱111安装于电路板上（未图示），片状定位脚310、406为分别焊接于印刷电路板上。

当与对接连接器（未图示）配接时，由于前述圆弧形过渡的遮蔽壳体30、40的导引，两电连接器对接较方便，且由于端子20收容于舌板103内，其定位较好，不存在与对接连接器错位插接的情形。

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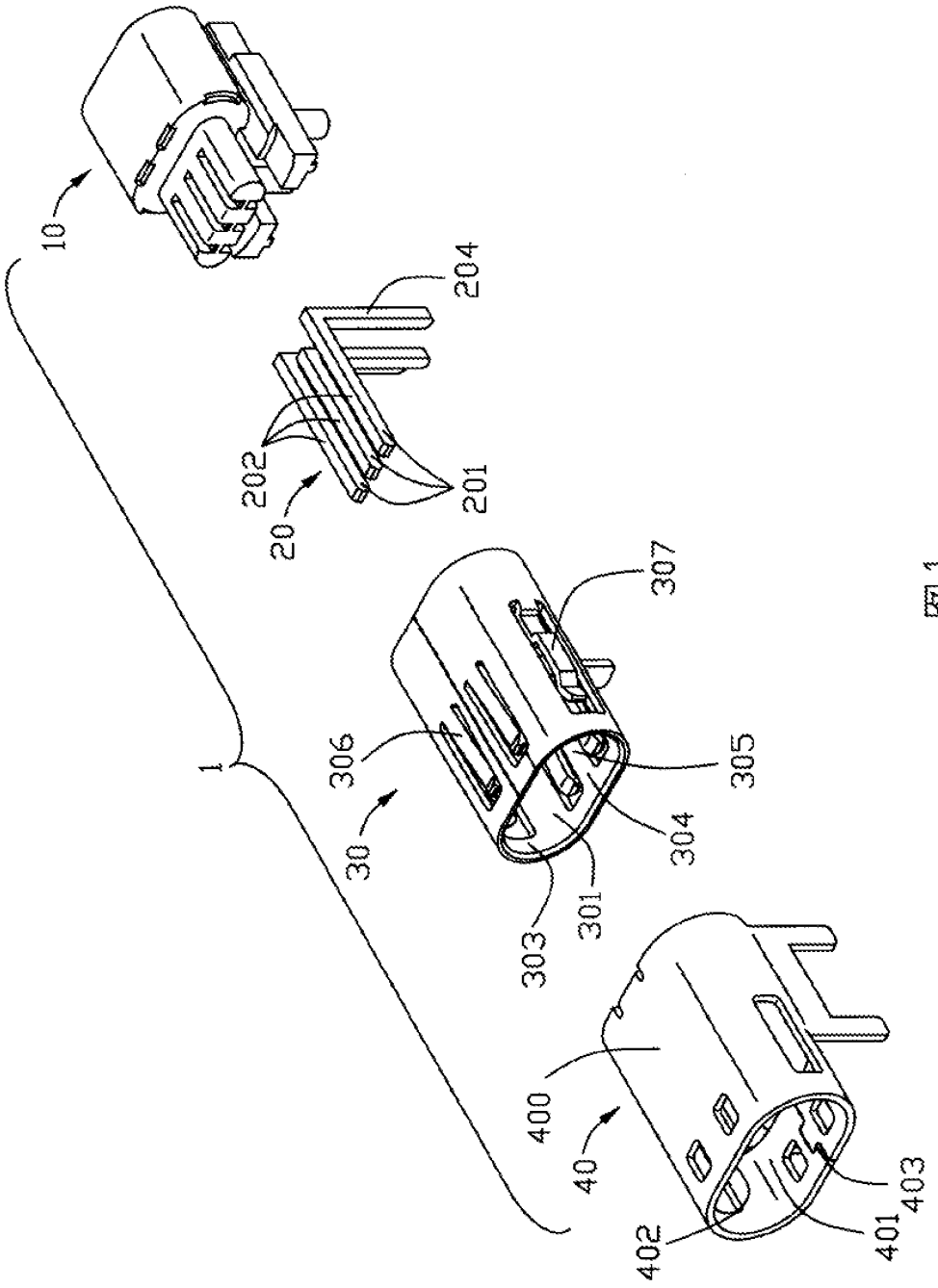


图1

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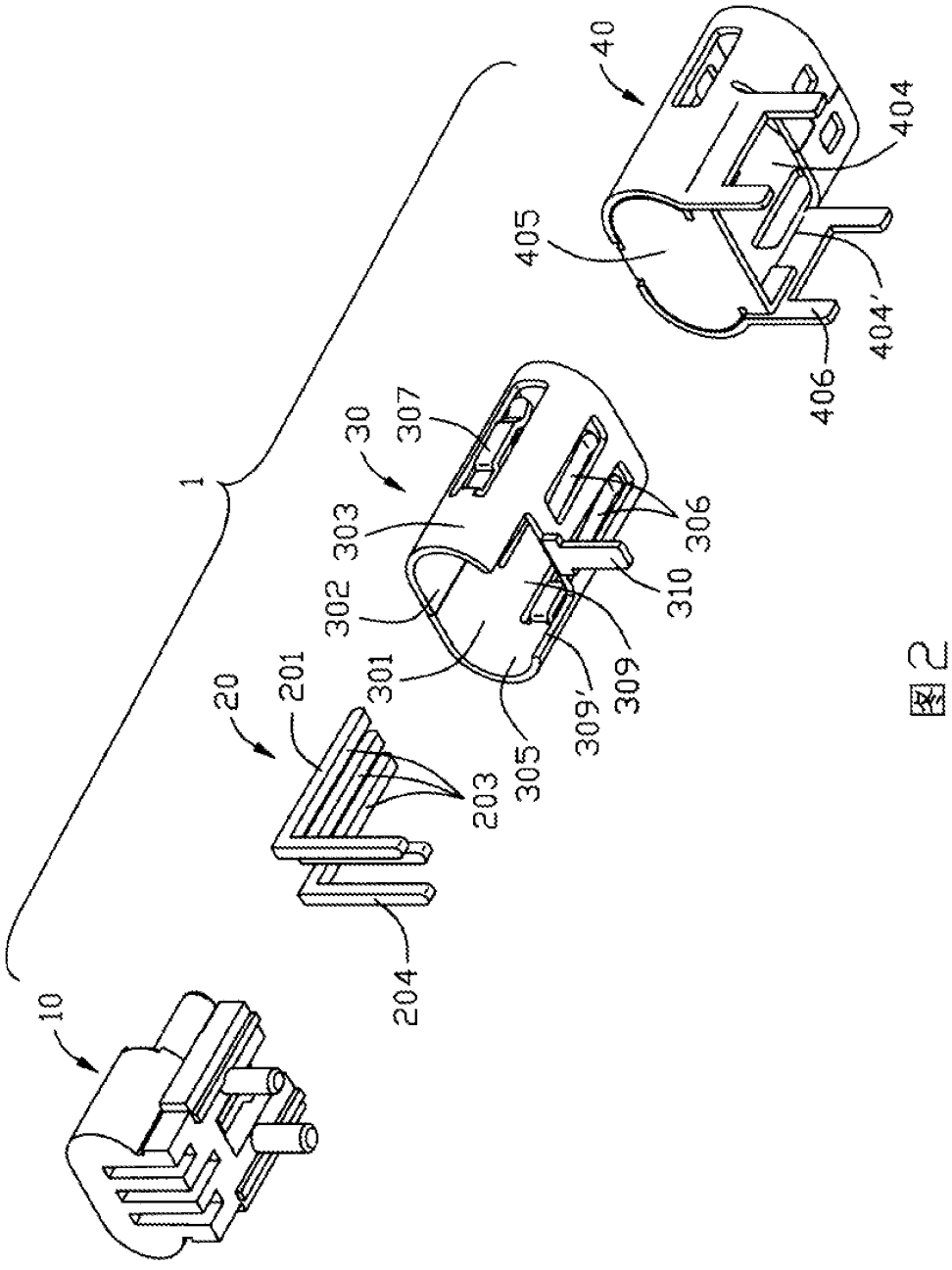


图2

Samsung, EX1019, p. 313

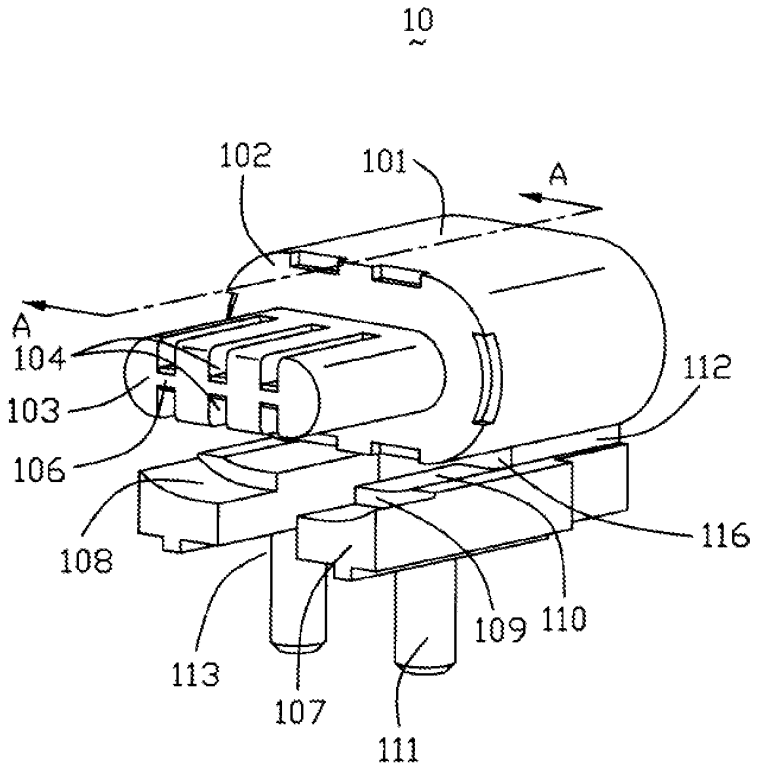


图3

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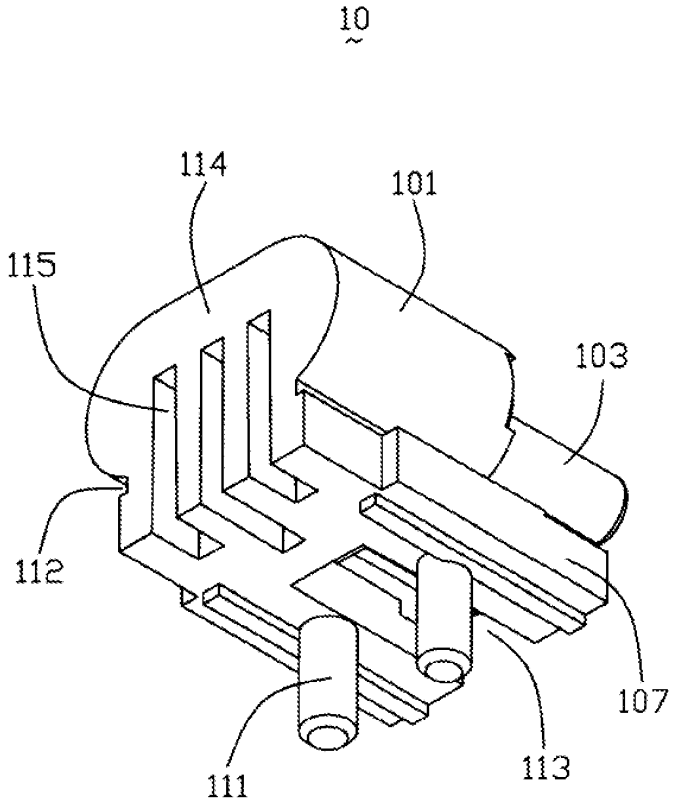


图4

Samsung, EX1019, p. 315

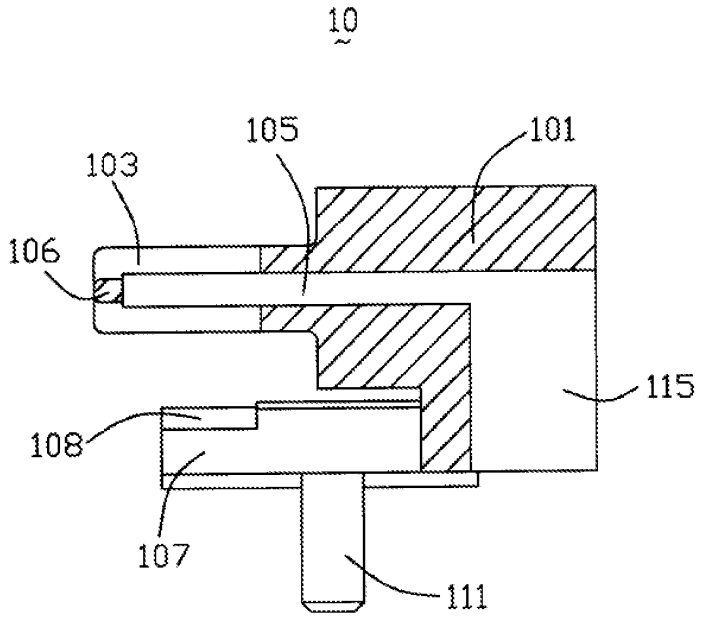


图5

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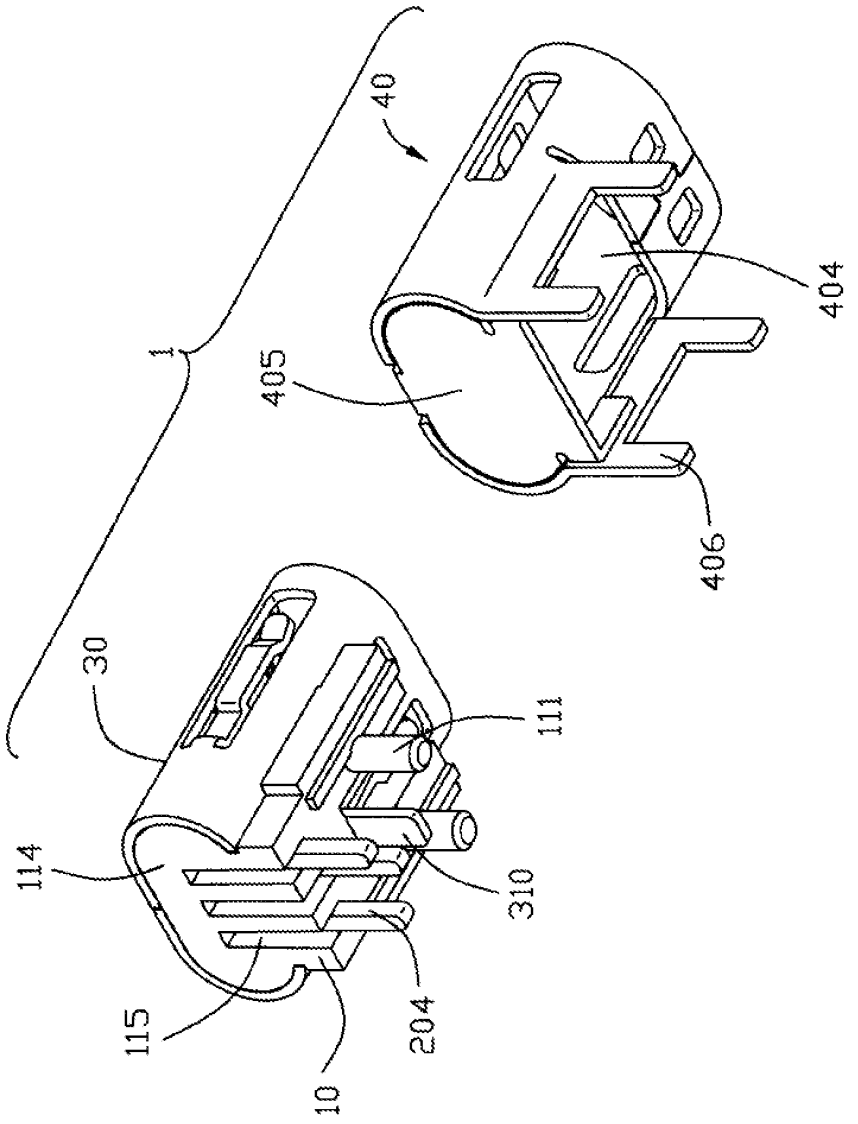


图6

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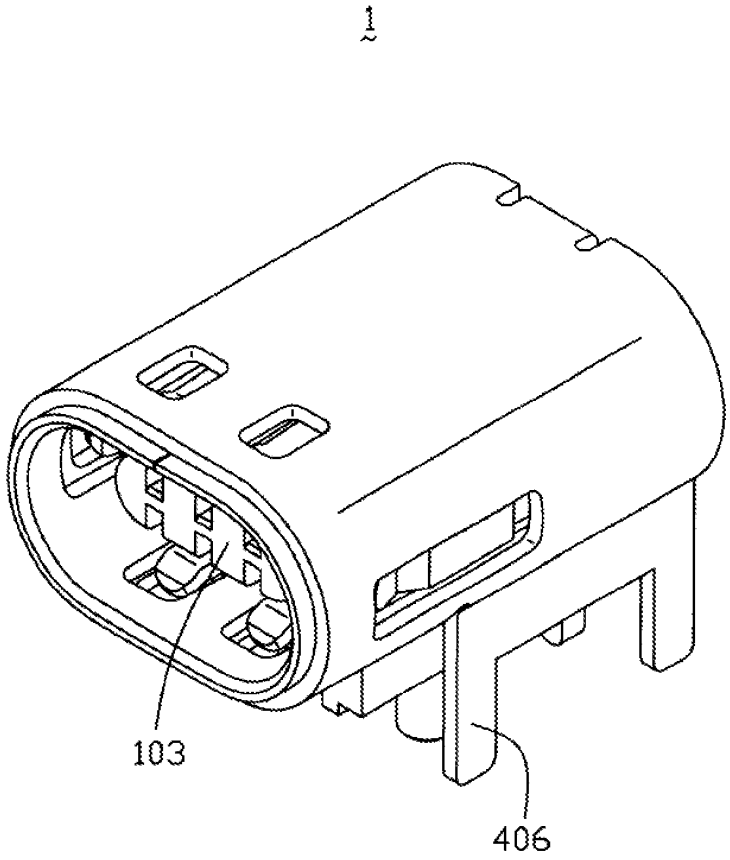


图7

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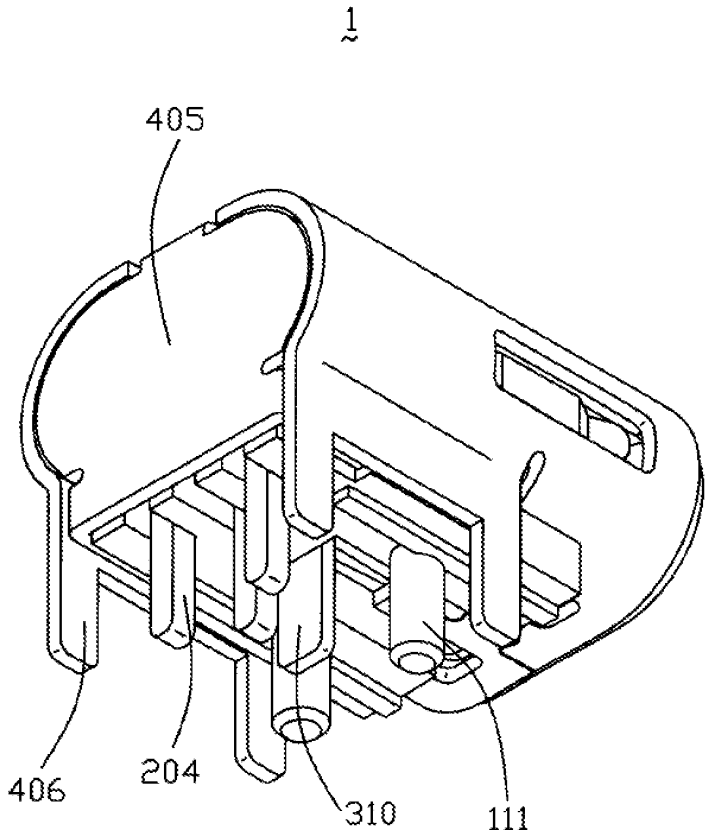


图8

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Espacenet

CN2733636Y Double end plugging USB joint

Applicants: YAO LIHE [CN]

Inventors: YAO LIHE [CN]

Classifications:
IPC ***H01R12/70; H01R24/00;*** (IPC1-7): H01R12/14; H01R24/00;

Priorities: CN200420074050U 2004-08-13

Application: CN2733636Y·2004-08-13

Publication: CN2733636Y·2005-10-12

Published as: CN2733636Y

Double end plugging USB joint

Abstract

The utility model relates to a double ends inserting USB joint which forms respectively conduction contacts matching with USB formats at the double ends of a circuit board. Simultaneously, the double ends of the circuit board are respectively provided with a deckle board which forms a plurality of running meter gills and a hollow out narrow slit is formed between two adjacent gills. The positions of the conduction contacts are just corresponding to those of the hollow out narrow slits which can cause the USB joint to use any ends to be inserted in corresponding connecting ports. The conduction contacts that end can form electrical contacts with the conductive terminals of the connecting ports. While the gills of the deckle board on the other end of the joint bunt on metallic striking flakes in the connecting ports to assure that the conduction contacts of the other end can not contact the metallic striking flakes and cause short circuit.

SooPAT

可双面插接的USB接头

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申请日：2004-08-13

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代理人　陈肖梅 文琦

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[51] Int. Cl⁷
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[45] 授权公告日 2005 年 10 月 12 日

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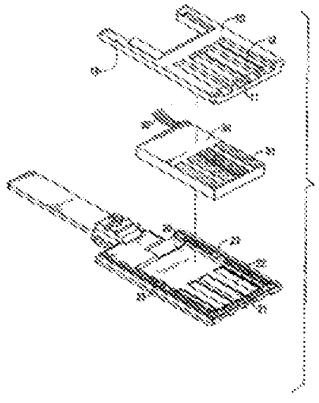
[22] 申请日 2004.8.13
[21] 申请号 200420074050.6
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权利要求书 2 页 说明书 6 页 附图 5 页

[54] 实用新型名称 可双面插接的 USB 接头

[57] 摘要

本实用新型涉及一种可双面插接的 USB 接头，于一电路板的双面分别形成符合 USB 规格的导电接点，同时于该电路板的两面分设一框板，各框板形成有数道纵长肋条，两相邻肋条间形成一镂空狭缝，前述导电接点的位置恰对应于该些镂空狭缝处，令该 USB 接头可利用任一面插设于对应的连接端口内，该面的导电接点可对应与连接端口内的导电端子构成电气接触，而该接头另面框板上的肋条抵止于连接端口内的金属弹片上，确保接头另面的导电接点不致接触于金属弹片而造成短路。



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1. 一种可双面插接的 USB 接头，其特征在于，包含：

一上框板，其上形成有数道肋条，两相邻肋条间形成一镂空的纵长狭缝；

一下框板，形成有对应该上框板的数道肋条，于两相邻肋条间亦形成一镂空的纵长狭缝；

一以多层线路构成的电路板，夹合于前述上、下两框板之间，该电路板一端的正、反两面均形成 USB 导电接点，该些导电接点的位置对应于上、下两框板的镂空狭缝处。

2. 如权利要求 1 所述可双面插接的 USB 接头，其特征在于，该上框板两相对侧边的内面上设有数个定位孔，且该下框板两相对侧边的内面上设有数个定位凸点，藉其与上框板的定位孔形成对应结合。

3. 如权利要求 1 或 2 所述可双面插接的 USB 接头，其特征在于，该电路板具有四层线路设计，位于最外侧的第一、四层线路形成前述的 USB 导电接点，置中的第二、三两层则分别作为接地片与电源片。

4. 如权利要求 3 所述可双面插接的 USB 接头，其特征在于，该 USB 导电接点包含一电源接点 V、两资料接点 D1、D2 及一接地接点 G；其中，第一、四两层重叠后，其上的资料接点 D1、D2 呈交叉布线。

5. 如权利要求 4 所述可双面插接的 USB 接头，其特征在于，该第一层线路上的电源接点经由第二层线路而连接至第三层线路，又该第一层线路上的接地接点直接连接于第二层线路。

6. 如权利要求 5 所述可双面插接的 USB 接头，其特征在于，该第四层线路上的接地接点经由第三层线路而连接至第二层线路，又该

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第四层线路上的电源接点直接连接于第三层线路。

7. 如权利要求 3 所述可双面插接的 USB 接头，其特征在于，该上、下框板的周缘复利用超音波技术加以固合。

8. 如权利要求 3 所述可双面插接的 USB 接头，其特征在于，该接头的厚度介于 1.7mm~2.3mm 之间。

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可双面插接的 USB 接头

技术领域

本实用新型涉及一种可双面插接的 USB 接头，尤指一种正反两面均可与 USB 标准连接端口构成信号接触而无方向限制的 USB 双面接头。

背景技术

个人计算机的外部接口设备种类近年来是渐趋丰富，键盘、鼠标、打印机、扫描仪早为人所知，CCD 摄影机、数字相机、MP3 随身听、外接硬盘等接踵而来，若是单凭现有的并列端口和串接端口已经无法满足用户的需要，USB 接口的推出无疑可解决该项问题。

USB 的优点如下：首先它可以支持热插拔技术与随插即用功能，这样用户可以方便的在计算机上直加增添外围设备，而且 USB 接口并不使用 IRQ 的中断控制以及输入输出的地址资源，最多可以连结 127 个设备。另外，USB 接口的另一优点即传输速度快，随着新一代的 USB 2.0 规范诞生，资料的传输频宽更具有显著扩展

USB 2.0（通用串行总线）是由诸多厂商联合制订，包括康柏、惠普、英特尔、Lucent、微软、NEC 和 Philips。USB2.0 在现有的 USB1.1 规格上增加了高速数据传输模式。在 USB2.0 中，除了 USB1.1 中规定的 1.5Mbit/s 和 12Mbit/s 两个模式以外，还增加了 480Mbit/s（60MB/s）这一“高速”模式，由于增加了高速模式，将会使 USB 的应用范围更进一步扩大，再者，USB2.0 亦具有向下兼容的特性，可以使用原来 USB1.1 定义中同样规格的电缆，接头的规格也完全相同，在高速的前提下一样保持了 USB 1.1 的优异特色，且不会和 USB 1.X 设备在共同使用的时候发生任何冲突。

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就目前市面上各式外围设备的 USB 公接头来看，仅能以单一面插设于 USB 母连接端口内，若是将该 USB 公接头翻转后，受限于 USB 连接端口内一挡块加以抵止，该公接头便无法连接于母连接端口内，该挡块的设置目的是为了确保公接头上的四个导电端点能正确地与连接端口内的四个端点构成对应接触，以避免电源端与接地端误接。

针对某些 USB 装置来说，若是仅能以单一方向插接于连接端口内，于实际操作应用时将极不方便。举例而言，如图 6 所示，对于直接在卡体上形成有 USB 接头的记忆卡而言，若采单一方向插设在计算机面板上的连接端口，卡体侧缘可能受面板部份的挡止而无法令 USB 接头顺利插入，此时若可将记忆卡翻转后，令 USB 接头改采另一面插入连接端口，便能解决此一问题，由此可知具双面插接功能的 USB 接头确实可提高装置操作的便利性。

实用新型内容

本实用新型的目的在于克服现有技术的不足与缺陷，提供一种可双面插接的 USB 接头，该 USB 接头的正反两面均可与 USB 标准连接端口构成信号接触。

为完成前述目的，该可双面插接的 USB 接头包含：

一上框板，其上形成有数道肋条，两相邻肋条间形成一镂空的纵长狭缝；

一下框板，形成有对应该上框板的数道肋条，于两相邻肋条间亦形成一镂空的纵长狭缝；

一以多层线路构成的电路板，夹合于前述上、下两框板之间，该电路板一端的正、反两面均形成 USB 规格的导电接点，该些导电接点的位置对应于上、下两框板的镂空狭缝处。

上述结构的 USB 接头能以其任一面插设于对应连接端口内，接

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头上其中一面的导电接点可与连接端口的导电端子构成电气接触，又该接头另面的肋条恰可抵止于连接端口内的金属弹片上，确保接头另面的导电接点不接触于该金属弹片而造成短路。以上述的 USB 接头无论以正方向或反方向插入连接端口，均可构成信号连结，而无方向性限制。

附图说明

图 1 为本实用新型的分解图；

图 2 为本实用新型双面 USB 接头电路板的各层电路布线图；

图 3 为本实用新型的一立体外观图；

图 4 为本实用新型经翻转后的立体外观图；

图 5 为本实用新型的操作示意图；

图 6 为一现有具有 USB 接头的记忆卡的操作示意图。

图中符号说明

10	上框板	11	狭缝
12	肋条	13	定位孔
20	下框板	21	狭缝
22	肋条	23	定位凸点
30	电路板	31	导电接点
32	导线	41	第一层线路
42	第二层线路	43	第三层线路
44	第四层线路	50	USB 连接端口
51	导电端子	52	弹片

具体实施方式

请参阅图 1 所示，本实用新型可双面插接的 USB 接头包含以绝缘材质构成的一上框板 10、一下框板 20 与一夹合在该上、下框板 10、20 之间的电路板 30。

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于上框板 10 形成有数道肋条 12，两相邻肋条 12 间形成一道镂空的纵长狭缝 11；在上框板 10 两相对侧边的内面上设有数个定位孔 13。

而前述下框板 20 的构造对应上框板 10，亦具备数道肋条 22 及四道镂空的纵长狭缝 21；在下框板 20 两相对侧边的内面上平均设有数个定位凸点 23，藉其与上框板 10 的定位孔 13 形成对应固定，两框板的周缘可进一步利用超音波技术加以固合。

该电路板 30 即夹合在上、下框板 10、20 之间，该电路板 30 其中一端部的正、反两面均形成有 USB 导电接点 31，而其另一端部即连接有数条导线 32，以构成一双面 USB 接头；当电路板 30 置于上、下框板 10、20 之间时，两面导电端点 31 的位置恰对应于上、下框板 10、20 的狭缝 11、21 处。

请参阅图 2 所示，前述构成 USB 接头的电路板 30 为多层的电路布线设计，如图中所示共计有四层线路 41～44，位于最外侧的第一、四层线路 41、44 供形成前述的 USB 导电接点 31，置中的第二、三两层 42、43 则分别作为接地片(GND)与电源片(VCC)。在此必须陈明的一点是图面上第一、四层 41、44 的电路布线为正片处理（即空白区域不具导电材质），且第一层线路 41 所标示的双圆形点代表绝缘贯孔。反之，第二、三层 42、43 均为负片处理（即空白区域具有导电材质），其上空心圆点标示处表示与导电材质电连接的导孔，而实心圆点表示绝缘贯孔，故第二层线路 42 大部份面积均为接地，第三层线路 43 大多数面积即为电源。

各层线路之间的连接如下：首先请参照第一、四两层的线路 41、44，四个 USB 导电接点依其电气特性分别标注为 V（电源）、D1（第一资料接脚）、D2（第二资料接脚）及 G（接地）。在第一层线路 41 的两 USB 导电接点 D1、D2 分别连接有一导电孔 a1、a2，而第四层

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线路 44 的两导电接点 D1、D2 分别连接有导电孔 a1'、a2'。前述两导电孔 a1、a2 经由第二、三层线路 42、43 对应连接至第四层线路 44 的导电孔 a1'、a2'，若两层线路 41、44 重叠视之，导电孔 a1、a2 与 a1'、a2'将相互交叉，故前述两 USB 导电接点 D1、D2 形成正确的对应连接。

第一层线路 41 的接地连接利用导电接点 G 的两接触区域 b1、b2 对应连接至第二层线路 42 的导电孔 b1'、b2'，而其电源连接以导电接点 V 的接触区域 c1 对应连接至第三层线路 43 的导电孔 c1'。

第四层线路 41 的接地连接利用导电接点 G 的两接触区域 b3、b3 对应连接至第二层线路 42 的导电孔 b3'、b4'，而其电源连接以导电接点 V 的接触区域 c2、c3 对应连接至第三层线路 43 的导电孔 c2'、c3'。

通过前述四层线路的相互连接，形成正、反两面均具有 USB 导电接点的接头，如图 3、4 所示，为本实用新型的正，反两面的立体外观图。以图 3 的正面视之，该 USB 接头上的导电接点 31 的排列依序为 V（电源）、D1（第一资料接脚）、D2（第二资料接脚）及 G（接地），纵使经翻转后如图 4 所示，该 USB 接头上的导电接点 31 的排列顺序仍是相同。

请参阅图 5 所示，为本实用新型的操作示意图。该双面插接的 USB 接头插设于一 USB 连接端口 50 后，USB 连接端口 50 内的四个金属导电端子 51 对应与接头其中一面的四个导电接点 31 构成对应接触；至于接头另面则因为突出的肋条 12 抵触在该 USB 连接端口 50 底面的金属弹片 52 上，故此面的四个导电接点 31 并不会直接与弹片 52 接触而造成短路。

综上所述，本实用新型可双面插接的 USB 接头可广泛应用于各式的电子产品上，如此一来，该电子产品在实际操作时便能选择适当

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的方向将接头对应连结至连接端口内，再者，本实用新型所提出的接头设计，其厚度相较于现有 USB 接头的厚度大幅缩减将近一半(约为1.7~2.3mm)，极适合整合在厚度要求轻薄的电子产品(如记忆卡)，相较于现有的 USB 接头设计，本实用新型显然具备明显功效提升。

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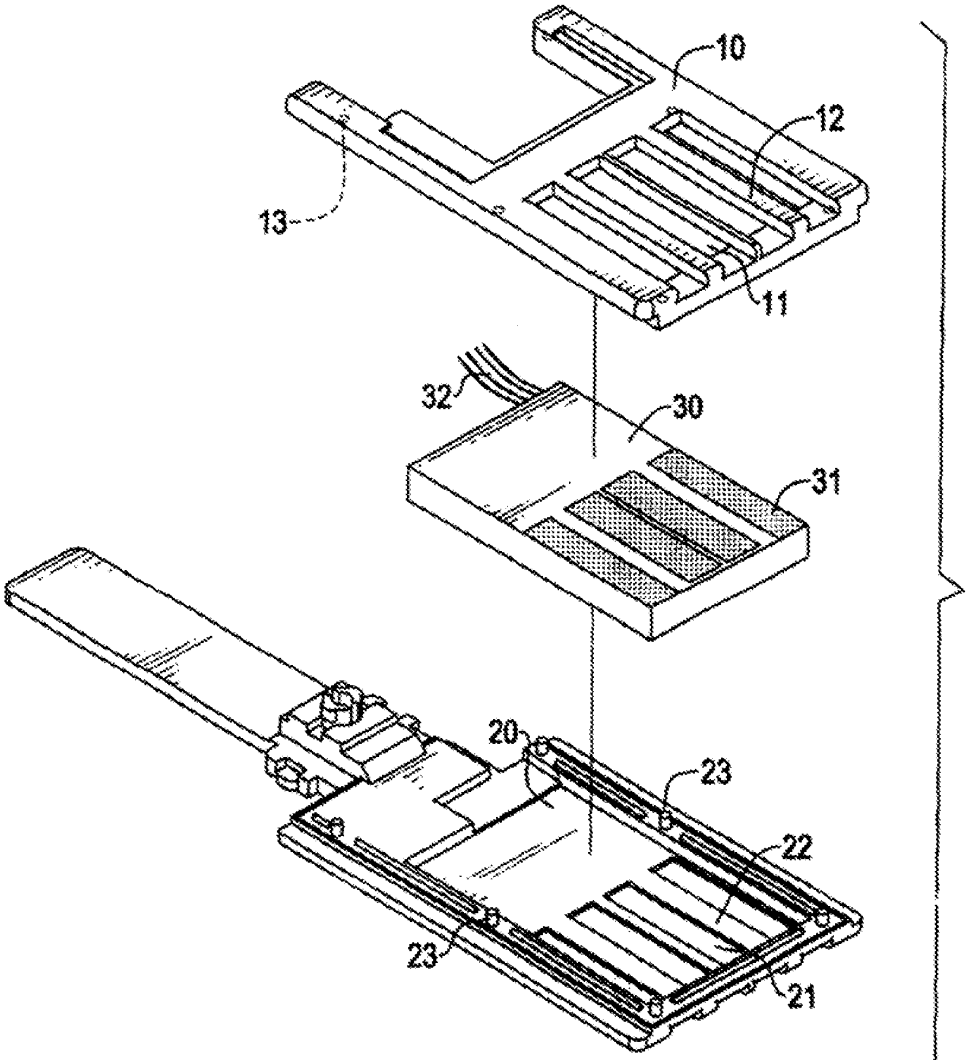


图1

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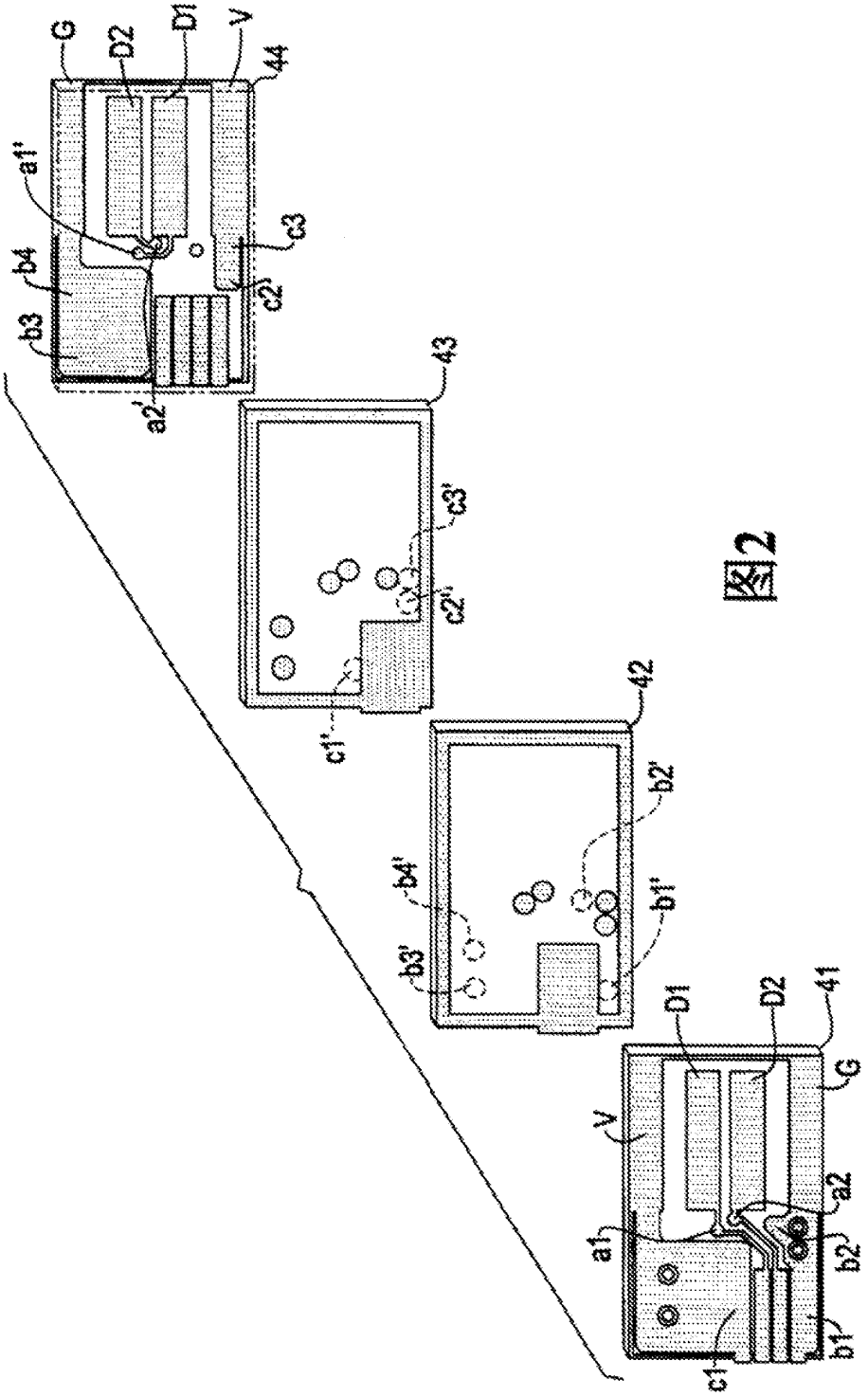


图2

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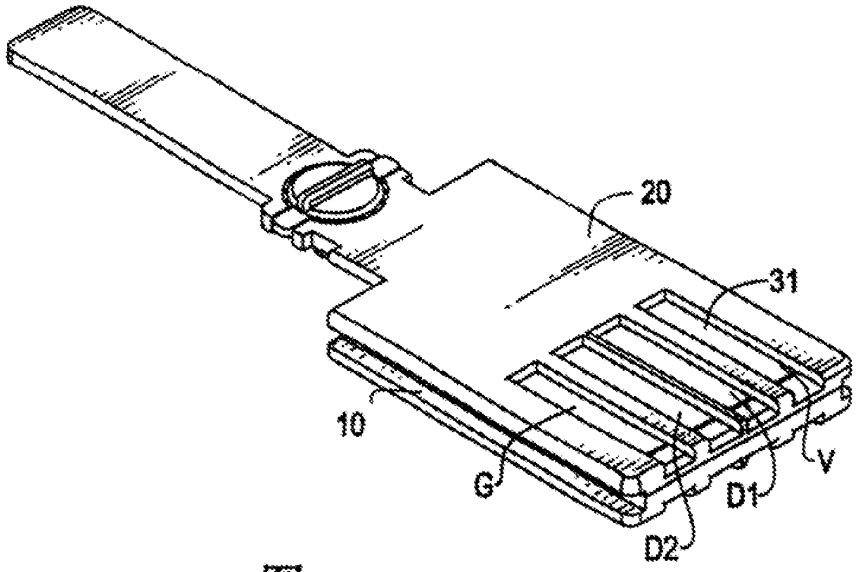


图3

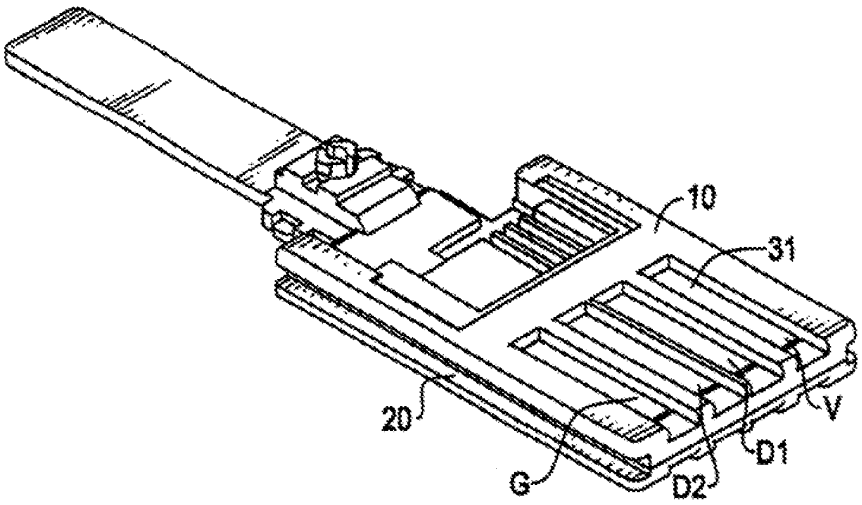


图4

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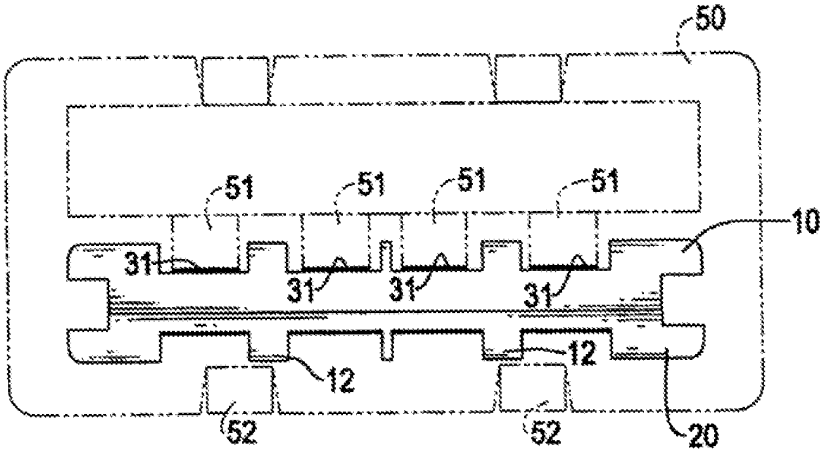


图5

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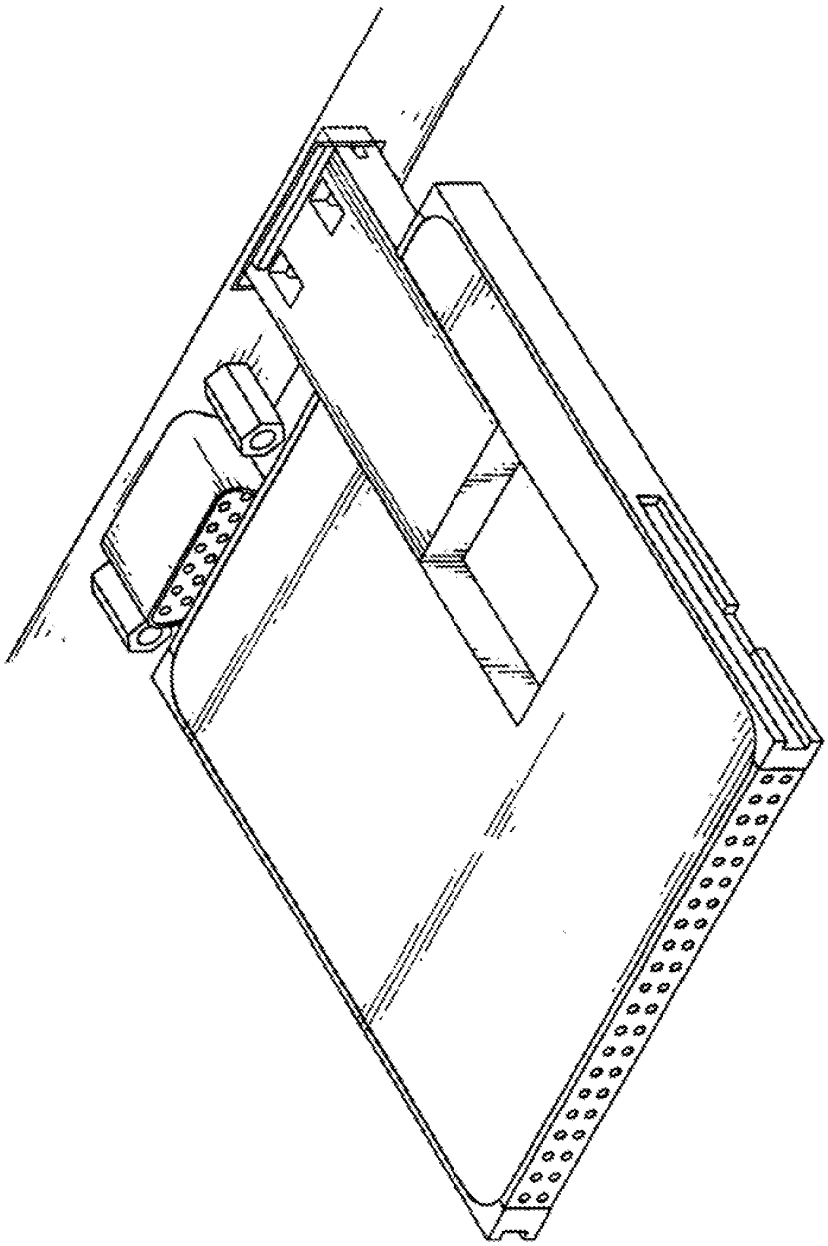


图6

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可双面插接的USB接头

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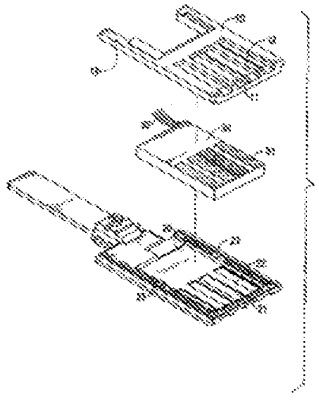
[22] 申请日 2004.8.13
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权利要求书 2 页 说明书 6 页 附图 5 页

[54] 实用新型名称 可双面插接的 USB 接头

[57] 摘要

本实用新型涉及一种可双面插接的 USB 接头，于一电路板的双面分别形成符合 USB 规格的导电接点，同时于该电路板的两面分设一框板，各框板形成有数道纵长肋条，两相邻肋条间形成一镂空狭缝，前述导电接点的位置恰对应于该些镂空狭缝处，令该 USB 接头可利用任一面插设于对应的连接端口内，该面的导电接点可对应与连接端口内的导电端子构成电气接触，而该接头另面框板上的肋条抵止于连接端口内的金属弹片上，确保接头另面的导电接点不致接触于金属弹片而造成短路。



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1. 一种可双面插接的 USB 接头，其特征在于，包含：

一上框板，其上形成有数道肋条，两相邻肋条间形成一镂空的纵长狭缝；

一下框板，形成有对应该上框板的数道肋条，于两相邻肋条间亦形成一镂空的纵长狭缝；

一以多层线路构成的电路板，夹合于前述上、下两框板之间，该电路板一端的正、反两面均形成 USB 导电接点，该些导电接点的位置对应于上、下两框板的镂空狭缝处。

2. 如权利要求 1 所述可双面插接的 USB 接头，其特征在于，该上框板两相对侧边的内面上设有数个定位孔，且该下框板两相对侧边的内面上设有数个定位凸点，藉其与上框板的定位孔形成对应结合。

3. 如权利要求 1 或 2 所述可双面插接的 USB 接头，其特征在于，该电路板具有四层线路设计，位于最外侧的第一、四层线路形成前述的 USB 导电接点，置中的第二、三两层则分别作为接地片与电源片。

4. 如权利要求 3 所述可双面插接的 USB 接头，其特征在于，该 USB 导电接点包含一电源接点 V、两资料接点 D1、D2 及一接地接点 G；其中，第一、四两层重叠后，其上的资料接点 D1、D2 呈交叉布线。

5. 如权利要求 4 所述可双面插接的 USB 接头，其特征在于，该第一层线路上的电源接点经由第二层线路而连接至第三层线路，又该第一层线路上的接地接点直接连接于第二层线路。

6. 如权利要求 5 所述可双面插接的 USB 接头，其特征在于，该第四层线路上的接地接点经由第三层线路而连接至第二层线路，又该

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第四层线路上的电源接点直接连接于第三层线路。

7. 如权利要求 3 所述可双面插接的 USB 接头，其特征在于，该上、下框板的周缘复利用超音波技术加以固合。

8. 如权利要求 3 所述可双面插接的 USB 接头，其特征在于，该接头的厚度介于 1.7mm~2.3mm 之间。

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可双面插接的 USB 接头

技术领域

本实用新型涉及一种可双面插接的 USB 接头，尤指一种正反两面均可与 USB 标准连接端口构成信号接触而无方向限制的 USB 双面接头。

背景技术

个人计算机的外部接口设备种类近年来是渐趋丰富，键盘、鼠标、打印机、扫描仪早为人所知，CCD 摄影机、数字相机、MP3 随身听、外接硬盘等接踵而来，若是单凭现有的并列端口和串接端口已经无法满足用户的需要，USB 接口的推出无疑可解决该项问题。

USB 的优点如下：首先它可以支持热插拔技术与随插即用功能，这样用户可以方便的在计算机上直加增添外围设备，而且 USB 接口并不使用 IRQ 的中断控制以及输入输出的地址资源，最多可以连结 127 个设备。另外，USB 接口的另一优点即传输速度快，随着新一代的 USB 2.0 规范诞生，资料的传输频宽更具有显著扩展

USB 2.0（通用串行总线）是由诸多厂商联合制订，包括康柏、惠普、英特尔、Lucent、微软、NEC 和 Philips。USB2.0 在现有的 USB1.1 规格上增加了高速数据传输模式。在 USB2.0 中，除了 USB1.1 中规定的 1.5Mbit/s 和 12Mbit/s 两个模式以外，还增加了 480Mbit/s（60MB/s）这一“高速”模式，由于增加了高速模式，将会使 USB 的应用范围更进一步扩大，再者，USB2.0 亦具有向下兼容的特性，可以使用原来 USB1.1 定义中同样规格的电缆，接头的规格也完全相同，在高速的前提下一样保持了 USB 1.1 的优异特色，且不会和 USB 1.X 设备在共同使用的时候发生任何冲突。

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就目前市面上各式外围设备的 USB 公接头来看，仅能以单一面插设于 USB 母连接端口内，若是将该 USB 公接头翻转后，受限于 USB 连接端口内一挡块加以抵止，该公接头便无法连接于母连接端口内，该挡块的设置目的是为了确保公接头上的四个导电端点能正确地与连接端口内的四个端点构成对应接触，以避免电源端与接地端误接。

针对某些 USB 装置来说，若是仅能以单一方向插接于连接端口内，于实际操作应用时将极不方便。举例而言，如图 6 所示，对于直接在卡体上形成有 USB 接头的记忆卡而言，若采单一方向插设在计算机面板上的连接端口，卡体侧缘可能受面板部份的挡止而无法令 USB 接头顺利插入，此时若可将记忆卡翻转后，令 USB 接头改采另一面插入连接端口，便能解决此一问题，由此可知具双面插接功能的 USB 接头确实可提高装置操作的便利性。

实用新型内容

本实用新型的目的在于克服现有技术的不足与缺陷，提供一种可双面插接的 USB 接头，该 USB 接头的正反两面均可与 USB 标准连接端口构成信号接触。

为完成前述目的，该可双面插接的 USB 接头包含：

一上框板，其上形成有数道肋条，两相邻肋条间形成一镂空的纵长狭缝；

一下框板，形成有对应该上框板的数道肋条，于两相邻肋条间亦形成一镂空的纵长狭缝；

一以多层线路构成的电路板，夹合于前述上、下两框板之间，该电路板一端的正、反两面均形成 USB 规格的导电接点，该些导电接点的位置对应于上、下两框板的镂空狭缝处。

上述结构的 USB 接头能以其任一面插设于对应连接端口内，接

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头上其中一面的导电接点可与连接端口的导电端子构成电气接触，又该接头另面的肋条恰可抵止于连接端口内的金属弹片上，确保接头另面的导电接点不接触于该金属弹片而造成短路。以上述的 USB 接头无论以正方向或反方向插入连接端口，均可构成信号连结，而无方向性限制。

附图说明

图 1 为本实用新型的分解图；

图 2 为本实用新型双面 USB 接头电路板的各层电路布线图；

图 3 为本实用新型的一立体外观图；

图 4 为本实用新型经翻转后的立体外观图；

图 5 为本实用新型的操作示意图；

图 6 为一现有具有 USB 接头的记忆卡的操作示意图。

图中符号说明

10	上框板	11	狭缝
12	肋条	13	定位孔
20	下框板	21	狭缝
22	肋条	23	定位凸点
30	电路板	31	导电接点
32	导线	41	第一层线路
42	第二层线路	43	第三层线路
44	第四层线路	50	USB 连接端口
51	导电端子	52	弹片

具体实施方式

请参阅图 1 所示，本实用新型可双面插接的 USB 接头包含以绝缘材质构成的一上框板 10、一下框板 20 与一夹合在该上、下框板 10、20 之间的电路板 30。

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于上框板 10 形成有数道肋条 12，两相邻肋条 12 间形成一道镂空的纵长狭缝 11；在上框板 10 两相对侧边的内面上设有数个定位孔 13。

而前述下框板 20 的构造对应上框板 10，亦具备数道肋条 22 及四道镂空的纵长狭缝 21；在下框板 20 两相对侧边的内面上平均设有数个定位凸点 23，藉其与上框板 10 的定位孔 13 形成对应固定，两框板的周缘可进一步利用超音波技术加以固合。

该电路板 30 即夹合在上、下框板 10、20 之间，该电路板 30 其中一端部的正、反两面均形成有 USB 导电接点 31，而其另一端部即连接有数条导线 32，以构成一双面 USB 接头；当电路板 30 置于上、下框板 10、20 之间时，两面导电端点 31 的位置恰对应于上、下框板 10、20 的狭缝 11、21 处。

请参阅图 2 所示，前述构成 USB 接头的电路板 30 为多层的电路布线设计，如图中所示共计有四层线路 41～44，位于最外侧的第一、四层线路 41、44 供形成前述的 USB 导电接点 31，置中的第二、三两层 42、43 则分别作为接地片(GND)与电源片(VCC)。在此必须陈明的一点是图面上第一、四层 41、44 的电路布线为正片处理（即空白区域不具导电材质），且第一层线路 41 所标示的双圆形点代表绝缘贯孔。反之，第二、三层 42、43 均为负片处理（即空白区域具有导电材质），其上空心圆点标示处表示与导电材质电连接的导孔，而实心圆点表示绝缘贯孔，故第二层线路 42 大部份面积均为接地，第三层线路 43 大多数面积即为电源。

各层线路之间的连接如下：首先请参照第一、四两层的线路 41、44，四个 USB 导电接点依其电气特性分别标注为 V（电源）、D1（第一资料接脚）、D2（第二资料接脚）及 G（接地）。在第一层线路 41 的两 USB 导电接点 D1、D2 分别连接有一导电孔 a1、a2，而第四层

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线路 44 的两导电接点 D1、D2 分别连接有导电孔 a1'、a2'。前述两导电孔 a1、a2 经由第二、三层线路 42、43 对应连接至第四层线路 44 的导电孔 a1'、a2'，若两层线路 41、44 重叠视之，导电孔 a1、a2 与 a1'、a2'将相互交叉，故前述两 USB 导电接点 D1、D2 形成正确的对应连接。

第一层线路 41 的接地连接利用导电接点 G 的两接触区域 b1、b2 对应连接至第二层线路 42 的导电孔 b1'、b2'，而其电源连接以导电接点 V 的接触区域 c1 对应连接至第三层线路 43 的导电孔 c1'。

第四层线路 41 的接地连接利用导电接点 G 的两接触区域 b3、b3 对应连接至第二层线路 42 的导电孔 b3'、b4'，而其电源连接以导电接点 V 的接触区域 c2、c3 对应连接至第三层线路 43 的导电孔 c2'、c3'。

通过前述四层线路的相互连接，形成正、反两面均具有 USB 导电接点的接头，如图 3、4 所示，为本实用新型的正，反两面的立体外观图。以图 3 的正面视之，该 USB 接头上的导电接点 31 的排列依序为 V（电源）、D1（第一资料接脚）、D2（第二资料接脚）及 G（接地），纵使经翻转后如图 4 所示，该 USB 接头上的导电接点 31 的排列顺序仍是相同。

请参阅图 5 所示，为本实用新型的操作示意图。该双面插接的 USB 接头插设于一 USB 连接端口 50 后，USB 连接端口 50 内的四个金属导电端子 51 对应与接头其中一面的四个导电接点 31 构成对应接触；至于接头另面则因为突出的肋条 12 抵触在该 USB 连接端口 50 底面的金属弹片 52 上，故此面的四个导电接点 31 并不会直接与弹片 52 接触而造成短路。

综上所述，本实用新型可双面插接的 USB 接头可广泛应用于各式的电子产品上，如此一来，该电子产品在实际操作时便能选择适当

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的方向将接头对应连结至连接端口内，再者，本实用新型所提出的接头设计，其厚度相较于现有 USB 接头的厚度大幅缩减将近一半(约为1.7~2.3mm)，极适合整合在厚度要求轻薄的电子产品(如记忆卡)，相较于现有的 USB 接头设计，本实用新型显然具备明显功效提升。

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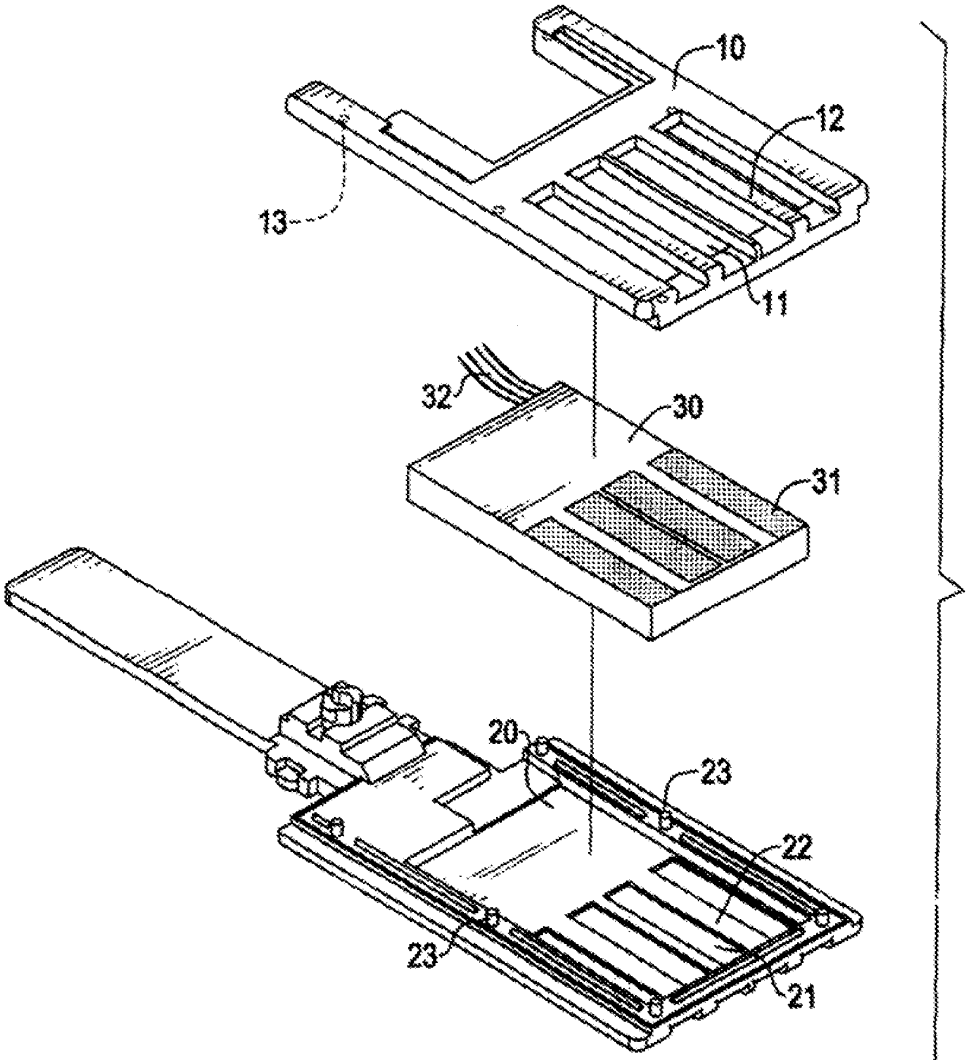


图1

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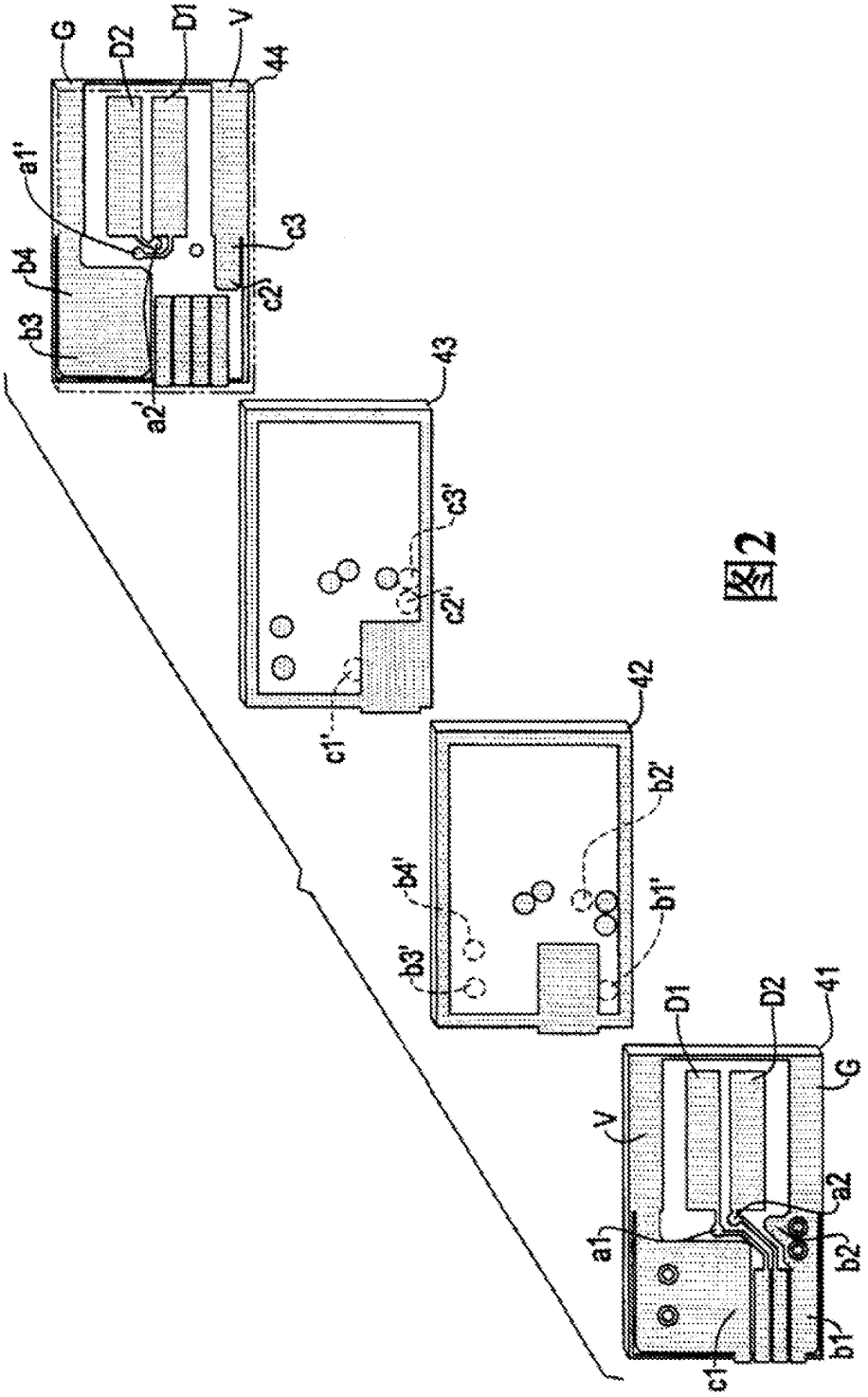


图2

Samsung, EX1019, p. 347

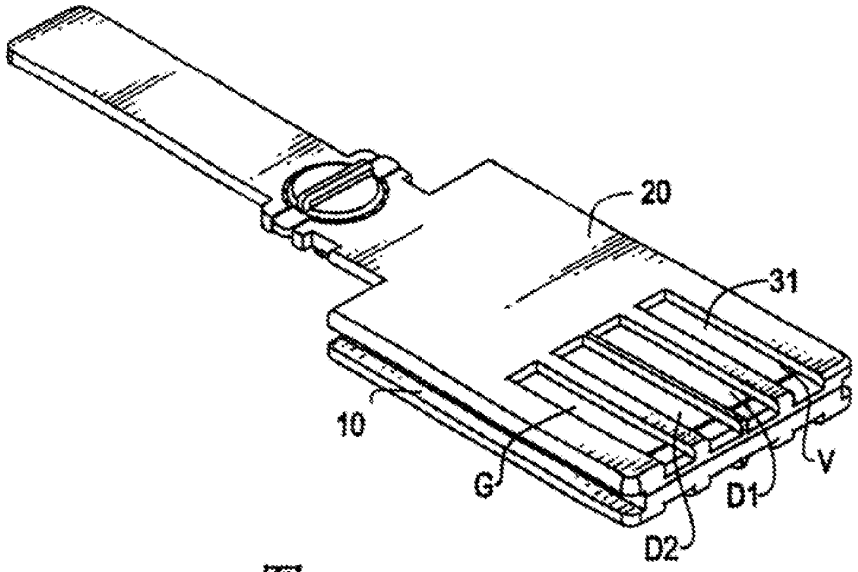


图3

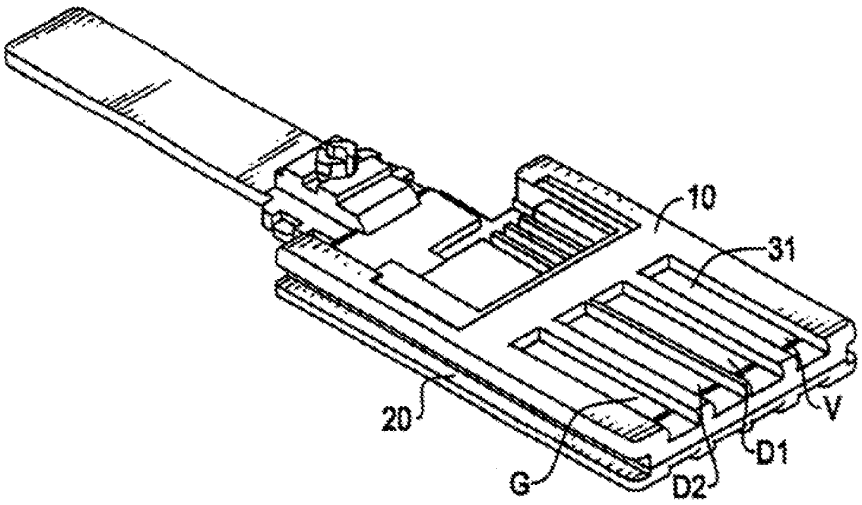


图4

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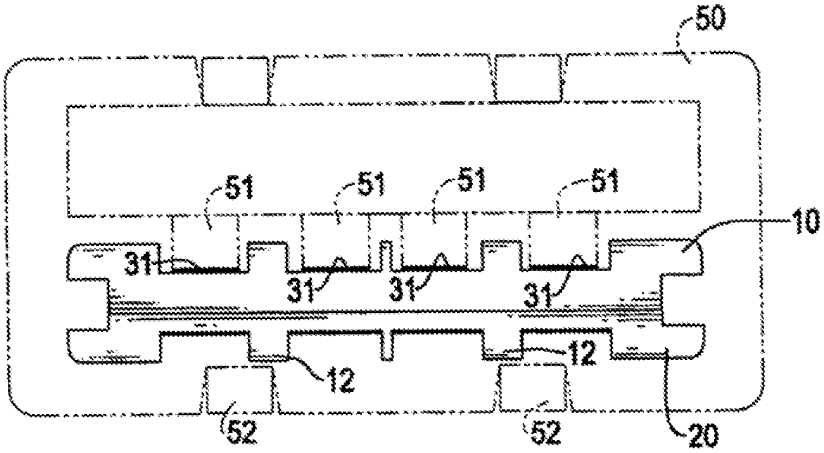


图5

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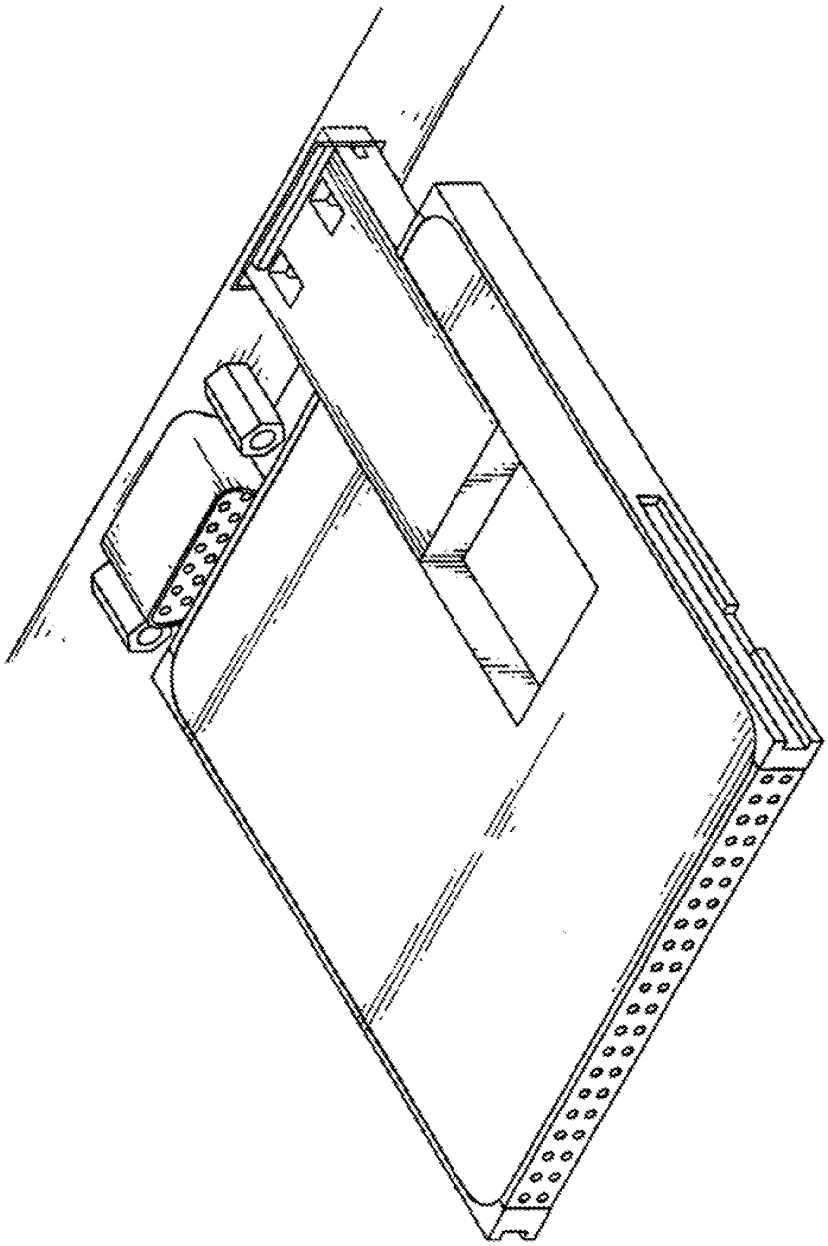


图6

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Espacenet

CN2791923Y Connecting head

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Classifications:
IPC ***H01R13/02; H01R43/16;***

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Connecting head

Abstract

The utility model relates to a connecting head, particularly a connecting head, both sides of which are provided with metallic connecting points. The utility model comprises a basal plate, wherein two planes of the basal plate are respectively provided with at least four connecting points; the four connecting points of one plane and the four connecting points of the other plane are in a relatively interlaced arranging mode, and are electrically connected. The utility model is matched with a female connecting head.

SooPAT

连接头

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申请日：2005-02-21

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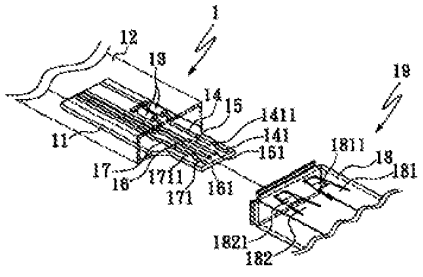
权利要求书 2 页 说明书 8 页 附图 3 页

[54] 实用新型名称

连接头

[57] 摘要

本实用新型涉及一种连接头，尤指一种双面都具有金属连接点的连接头。本实用新型包括：一基板，该基板的二平面各具有至少四个连接点，一平面的四个连接点与另一平面的四个连接点为相对错位的排列方式，且电性相连，与一母连接头配合。



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1. 一种连接头，其特征在于包括：

一基板，该基板的二平面各具有至少四个连接点，一平面的四个连接点与另一平面的四个连接点采用相对错位的排列方式，且部分电性相连，与一母连接头配合。

2. 如权利要求 1 所述的连接头，其特征在于：该连接点为电极片。

3. 如权利要求 1 所述的连接头，其特征在于：该连接头更包括一防短路装置，位于该基板上，且分别与任一平面的连接点电性相连。

4. 如权利要求 3 所述的连接头，其特征在于：该防短路装置为类比式开关与稳压器 IC。

5. 如权利要求 1 所述的连接头，其特征在于：该母连接头为一母 USB 接头。

6. 一种连接头，其特征在于包括：

一基板，该基板的二平面各具有至少四个连接点，一平面的四个连接点与另一平面的四个连接点采用相对错位的排列方式，且部分电性相连，与一母连接头配合；

一防短路装置，位于该基板上，且分别与任一平面的连接点电性相连。

7. 如权利要求 6 所述的连接头，其特征在于：该连接点为电极片。

8. 如权利要求 6 所述的连接头，其特征在于：该防短路装置为二极管装置、类比式开关与稳压器 IC。

9. 一种连接头，其特征在于包括：

一基板，该基板的二平面各具有多数个连接点，一平面的多数连接点与另一平面的多数连接点采用相对错位的排列方式，且至少三个连接点电性相连，与一记忆卡插槽的连接头配合。

10. 如权利要求 9 所述的连接头，其特征在于：该连接点为电极片。

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11. 如权利要求 9 所述的连接头，其特征在于：该连接头为一种记忆卡连接头。

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连接头

技术领域

本实用新型涉及一种连接头，尤其涉及一种双面都具有金属连接点的连接头。

背景技术

在电脑的连接传输装置经过了多次系统的整合与改良后，通用序列汇流排（USB）终于成为主流的规格。这其中除了其软件上的应用方便外，如随插即用的模式，也有其硬件上的传输量足以达到目前市场的需求。因此，该规格被设计成与各种不同应用的配合。例如，外接式储存媒体、外接式播放媒体、硬盘间的资料传输等，都应用了USB介面。所以，现今任何一种具备计算系统的电子产品与消费性电子产品，没有USB的规格将是无法在市场上销售的。

已知技术中，公USB接头欲插入母USB接头时，使用者都必须确认是哪一面朝上或朝下才可插入。如此，造成使用者一定程度的不方便，例如，若是一般的台式电脑，其母USB接头在主机的背面，使用者必须蹲下、跪下或趴下去找寻该接头，找到后又要辨认公USB接头可插入的方位，方可达到目的，实在不方便。再者，若是笔记本电脑，其母USB接头在周围，而若是在背面的边缘时，欲插上公USB接头也必须稍微试探一下才可插入。

上述的状况仅止于电脑的产品，以现今电脑与家用电器的整合趋势来看，未来的复合式家电将是市场的主流。所以，各种不同规格的接头可能布满了复合式家电的周边。因此，若是不需要确认USB接头插入的方向，则将会省却许多因为多种规格接头而需确认位置的麻烦。

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另一方面，若仅 USB 接头有这样的方便，在各种规格中自然更具竞争力。但是，现今各种不同电子品牌因充斥市场而衍生出多种连接头规格，如 FUJI、CANON、PANTEX、SONY 等记忆卡，例如 SD，MS，MMC，都有其自己的规格。而这些品牌中所具有共同的特点是：所有由一个公连接头插入另一个母连接头，其仅具有单一的方向性；也就是说，在消费者要插入连接头时，必须注意是哪一面朝上或朝下，才可插入。甚至，有时因为一时的粗心，因硬件安装时未有统一的规定而与制式的方式不同时，导致消费者以其习惯的方向插入而使得硬件损坏，实在是得不偿失！因此，如何研发出一种新型连接头，以解决已知技本的不便之处，将是本实用新型所欲积极探讨的目的。

发明内容

本实用新型的目的在于提供一种连接头，以解决已知技术中插入 USB 接头时，必须确认插入的方向性所造成的不便。即令本实用新型不具单一性的插入方向。

本实用新型的另一目的在于提供一种记忆卡连接头，以解决已知技术中插入记忆卡接头时，例： SD，MS，MMC，XD，mini-SD 或其他记忆卡，必须确认插入的方向性所造成的不便。即令本实用新型不具单一性的插入方向。

本实用新型再一目的在于提供一种连接头，可令 USB 规格的接头可以在未来电脑与家电整合后的复合式家电中，其所需的各种不同规格的接头更具竞争力。

本实用新型的目的是这样实现的，一种连接头，包括：一基板，该基板的二平面各具有至少四个连接点，一平面的四个连接点与另一平面的四个连接点采用相对错位的排列方式，且部分电性相连，与一母连接头配合。

该连接点为电极片。

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该连接头更包括一防短路装置，位于该基板上，且分别与任一平面的连接点电性相连。

该防短路装置为类比式开关与稳压器 IC。

该母连接头为一母 USB 接头。

一种连接头，包括：一基板，该基板的二平面各具有至少四个连接点，一平面的四个连接点与另一平面的四个连接点采用相对错位的排列方式，且部分电性相连，与一母连接头配合；

一防短路装置，位于该基板上，且分别与任一平面的连接点电性相连。

该连接点为电极片。

该防短路装置为二极管装置、类比式开关与稳压器 IC。

一种连接头，包括：一基板，该基板的二平面各具有多数个连接点，一平面的多数连接点与另一平面的多数连接点采用相对错位的排列方式，且至少三个连接点电性相连，与一记忆卡插槽的连接头配合。

该连接点为电极片。

该连接头为一种记忆卡连接头。

附图说明

图 1 为本实用新型的连接头的第一较佳实施例示意图；

图 2 为本实用新型的连接头的第一较佳实施例细部示意图；

图 3 为本实用新型的连接头的第一较佳实施例电源线路配置示意图；

图 4 为本实用新型的一种连接头的第二实施例示意图。

附图标号：

1 连接头

11 基板

12 外壳

13 防短路装置

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14 线路

141 电极片

1411 固定机构

15 线路

151 电极片

16 线路

161 电极片

17 线路

171 电极片

1711 固定机构

18 母 USB 接头

181 压片

1811 固定机构

182 压片

1821 固定机构

184 地线接头

19 套件

14' 线路

141' 电极片

1411' 固定机构

15' 线路

151' 电极片

16' 线路

161' 电极片

17' 线路

171' 电极片

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1711' 固定机构

5 连接头

51 基板

52 电极片

53 电极片

54 电极片

55 电极片

56 电极片

57 电极片

58 电极片

A 线路

B 线路

A' 二极管

B' 二极管

具体实施方式

请参阅图 1 与图 2 所示，是本实用新型的一种连接头的第一较佳实施例与细部示意图。本实用新型连接头，该连接头 1 包括：一基板 11，是一多层线路板，该基板 11 的二平面各具有至少四个连接点，如图 1 中的电极片 141（5V）、151（D+）、161（D-）、171（GND），该平面的四个连接点与另一平面的四个连接点采相对错位的排列方式，如图 2 所示的电极片 141'（5V）、151'（D+）、161（D-）、171（GND），且部分电性相连，即利用图 1 中的多数个线路 14、15、16、17 彼此电性相连，以与一母连接头配合，即一母 USB 接头 18 相连接，电极片 141、151、161、171 更可设置固定机构，如固定机构 1411 与 1711，以在与该具有 USB 介面的装置连接时进行固定的功能，即当本实施例欲与如同图 1 中所示的位于一套件 19 内

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的母 USB 接头 18 相接时，该固定机构 1411 与 1711 的突起设计可与两压片 181、182 的固定机构 1811 与 1821 的凹陷设计互相配合，达到某种程度的固定，由于本实施例是两面都采用相同的电极片设计，如图 2 所示的固定机构 1411’与 1711’，因此不论是哪一面朝向图中的上面进入该母 USB 接头 18，都可达到固定的效果；一防短路装置 13，位于基板 11 上，且分别与任一平面的连接点电性相连，该防短路装置 13 为下列任一种：二极管装置，类比式开关与稳压器 IC；一外壳 12，包覆于上述基板 11 与防短路装置 13 之外，以形成保护作用。本实施例表示一应用于俗称“大姆哥”的 USB 随身碟，可利用本实用新型而以不具单一方向性的连结方式与母连接头连接。

请参阅图 2 与图 3，图 3 为本实用新型的一种连接头的第一较佳实施例电源线路配置示意图。图 3 中，具有线路 A 的面与具有线路 B 的面分别代表图 2 中具有线路 14、15、16、17 的面（以下简称正面）与另一相对面（以下简称反面），且线路 A 是线路 14、15、16、17 的总集合名，线路 B 是线路 14’、15’、16’、17’的总集会名；其中，线路 A 有 5V 的电源来自于如图 1 中与母 USB 接头 18 相接时，母 USB 接头 18 所提供的；线路 B 也如是，只是必须是在具有反面朝上插入母 USB 接头 18 时，母 USB 接头 18 可提供 5V 的直流电。而后，提供的直流电分别通过防短路装置 13 中的二极管 A’与二极管 B’以提供给本实用新型的 IC。图 3 中所示，是以正面朝上与母 USB 接头 18 相接。然，母 USB 接头 18 内的下方具有一地线接头 184，以本图看来，无法分辨是哪一条线路与其相接。因此，为配合正面的电极片 171 为地线（GND）、电极片 161 为 D－、电极片 151 为 D＋、电极片 141 为 5V 直流电来源与反面的电极片 171’为地线（GND）、电极片 161’为 D-、电极片 151’为 D+、电极片 141’为 5V 直流电来源，正面电极片与反面电极片相对错位的安排，如图 2 所示的正面线路 14、15、16、17 的电极片 141、151、161、171 与反面线路 14’、15’、16’、17’的电极片 141’、151’、

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161'、171'的位置关系，使正反面无论哪一面与母USB接头18相接时，母USB接头18的USB的5V，GND，D+，D-等讯号正确传导到装设该连接头的装置。

141与141'不可直接连接，如果141与141'直接连接，在正反面无论哪一面与母USB接头18相接时，5V直流电来源都会与该地线接头184接触，将使5V直流电来源短路到地线接头184必须做一防短路装置13，。即因为电极片171、171'在连接头1以不同的插入方向插入母USB接头18时，会分别与地线接头184接触，进而造成的5V直流电来源短路。于是，本实施例即有如前所述的防短路装置13，该防短路装置13包括线路A、线路B、二极管A'与二极管B'，且线路A与线路B为并联状态，使连接头1以不同的插入方向插入母USB接头18时，USB接头18的5V直流电来源都可经二极管A或二极管B传导到装设该连接头的装置。该防短路装置13，其也可各为一稳压器IC或一类比式开关，以防止5V的电极片接地而5V直流电来源短路，可提供5V直流电来源。

请参阅图4，是本实用新型的一种新型记忆卡储存卡连接头的第二实施例。本实施例是利用目前市面上的多媒体储存卡（MMC; MultiMediaCard）进行延伸性的应用，例如，将两边各设计成具有截角的造型，以除去现今因着只具有单一截角的部分而只能单方向插入一母连接头的问题。因此，该连接头5包括：一基板51，该基板的二平面各具有七个连接点，如图4所示的多数个电极片52（CMD）、53（VDD）、54（CLK）、55（DAT）、56、57、58等，反面的电极片（图4未示）亦然，该平面的多数个电极片与另一平面的多数个电极片采相对错位的排列方式，且至少三个连接点电性相连，以与一母连接头配合。其中，该基板51是一多层线路板，因此可以在两面布上多数个电极片，达到不具单一方向性的插入母连接头的特性。

本实用新型的一种连接头是采用了新思维的设计，即，将已知技术中仅具有单面的连接点或电极片而造成只能以单一方向性插入母连接头的缺

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点，改善成为双面都具有连接点或电极片的设计，以形成不具单一方向性插入母连接头的优点。

虽然本实用新型已以具体实施例揭示，但其并非用以限定本实用新型，任何本领域的技术人员，在不脱离本实用新型的构思和范围的前提下所作出的等同组件的置换，或依本实用新型专利保护范围所作的等同变化与修饰，都应仍属本专利涵盖之范畴。

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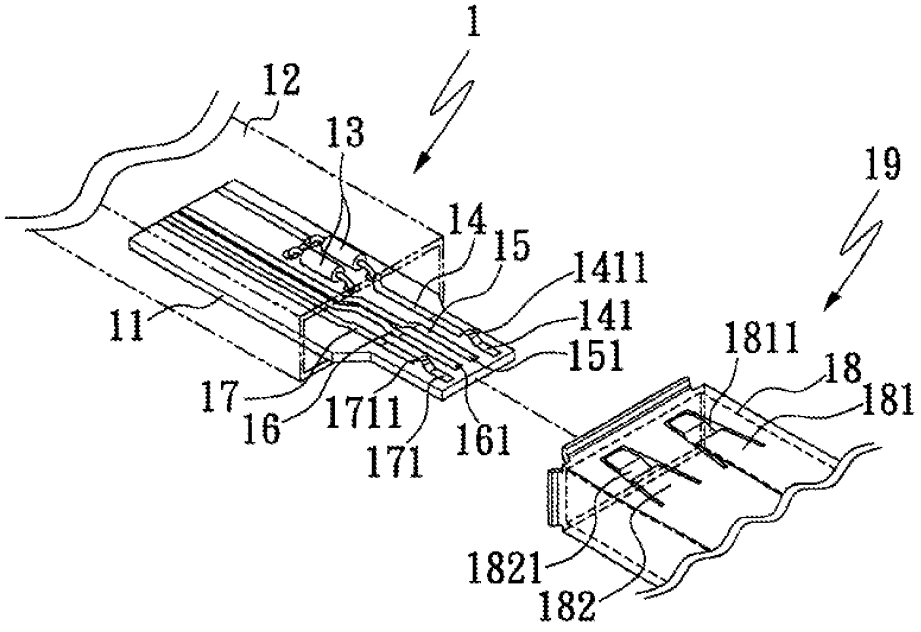


图 1

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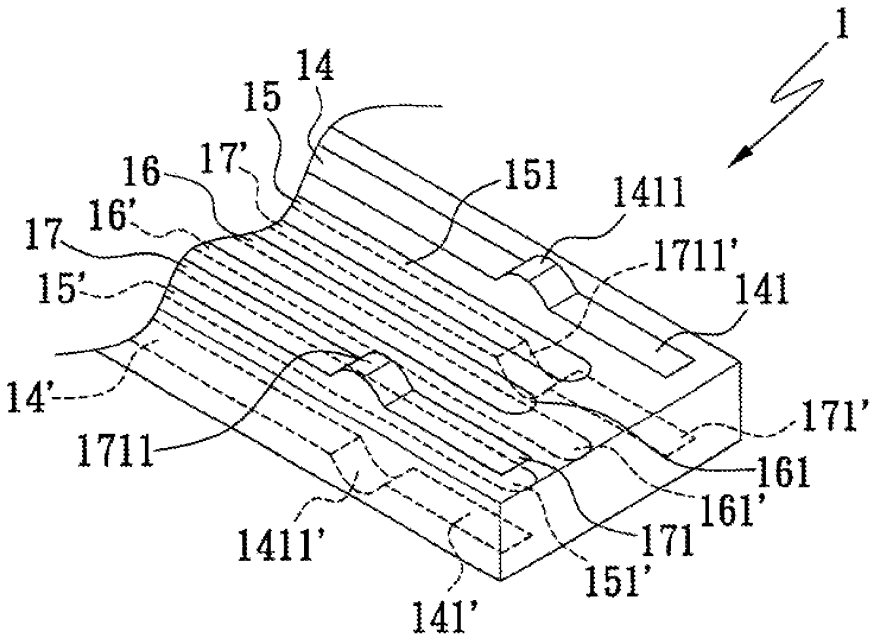


图 2

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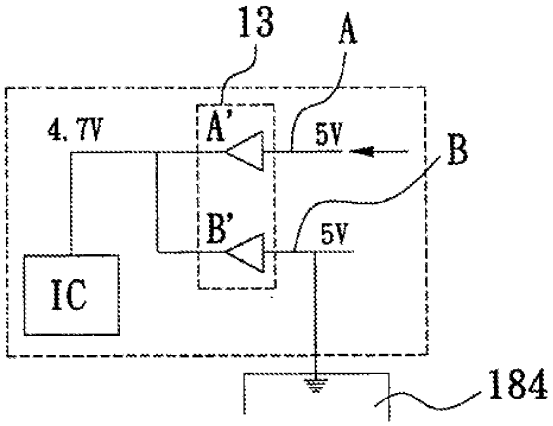


图 3

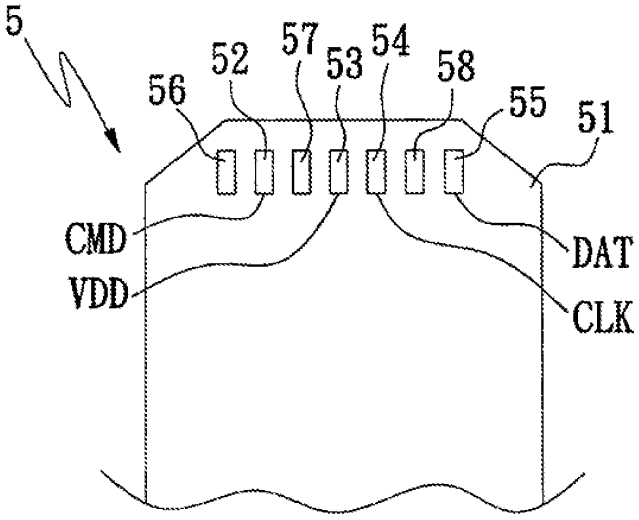


图 4

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Espacenet

CN201478495U Signal connector

Applicants: INVENTEC CORP

Inventors: PING JI,ZHIFENG CHEN

Classifications:
IPC ***H01R13/40; H01R13/46; H01R13/62;***

Priorities: CN200920168516U 2009-07-28

Application: CN201478495U 2009-07-28

Publication: CN201478495U 2010-05-19

Published as: CN201478495U

Signal connector

Abstract

The utility model provides a signal connector, comprising a shell body and a convex connection part arranged in the shell body. A plurality of first pins are arranged on the first surface of the convex connection part, and a plurality of second pins are arranged on the opposite second surface of the convex connection part. When a USB joint is respectively inserted between the shell body and the convex connection part from two opposite directions, a plurality of USB pins of the USB joint are respectively contacted with the first pins and the second pins. The signal connector has the advantages of double-surface insertion for further enhancing convenience and simple structure.

SooPAT

信号连接器

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申请日：2009-07-28

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主分类号　H01R12/14(2006.01)I
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代理人　陈红

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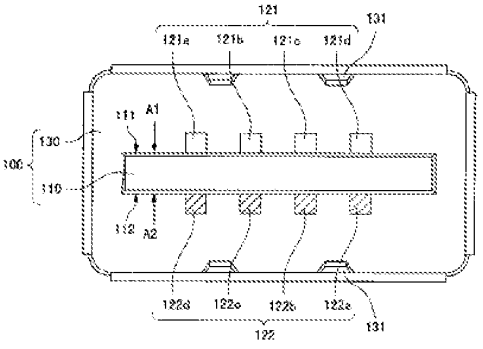
权利要求书 1 页 说明书 4 页 附图 4 页

(54)实用新型名称

信号连接器

(57)摘要

本实用新型提供一种信号连接器，包含一壳体及设置于壳体中的一凸接部。多个第一接脚设置于凸接部的第一表面上，多个第二接脚设置于凸接部的相对的第二表面上。当USB接头分别由相对两方向插接于壳体及凸接部之间时，USB接头的多个USB接脚分别接触于第一接脚及第二接脚。本实用新型的信号连接器具有可双面插接进而提升使用便利性，以及结构简单的优点。



CN 201478495 U

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1. 一种信号连接器，其特征在于，至少包含：

一壳体；以及

一凸接部，设置于该壳体内，其中一 USB 接头用以插接于该壳体及该凸接部之间，该 USB 接头包含多个 USB 接脚，该凸接部包含：

相对的一第一表面及一第二表面；

多个第一接脚，设置于该第一表面，当该 USB 接头由一正方向插接于该壳体及该凸接部之间时，该些 USB 接脚接触于该些第一接脚；及

多个第二接脚，设置于该第二表面，当该 USB 接头由翻转 180 度后的一反方向插接于该壳体及该凸接部之间时，该些 USB 接脚接触于该些第二接脚。

2. 根据权利要求 1 所述的信号连接器，其特征在于，该些第一接脚对应于一通用序列总线规格的接脚配置，该 USB 接头为一 USB 公接头，该些第一接脚及该些 USB 接脚各自至少包含一数据接脚、一接地接脚及一电源接脚。

3. 根据权利要求 2 所述的信号连接器，其特征在于，当该 USB 接头由该正方向插接于该壳体及该凸接部之间时，该些第一接脚中的该数据接脚、该接地接脚及该电源接脚分别对应接触于该些 USB 接脚中的该数据接脚、该接地接脚及该电源接脚。

4. 根据权利要求 1 所述的信号连接器，其特征在于，该些第二接脚对应于一通用序列总线规格的接脚配置，该 USB 接头为一 USB 公接头，该些第二接脚及该些 USB 接脚各自至少包含一数据接脚、一接地接脚及一电源接脚。

5. 根据权利要求 4 所述的信号连接器，其特征在于，当该 USB 接头由该反方向插接于该壳体及该凸接部之间时，该些第二接脚中的该数据接脚、该接地接脚及该电源接脚分别对应接触于该些 USB 接脚中的该数据接脚、该接地接脚及该电源接脚。

6. 根据权利要求 1 所述的信号连接器，其特征在于，该些第一接脚的数目相等于该些第二接脚的数目，且该些第一接脚的数目相等于该些 USB 接脚的数目。

7. 根据权利要求 6 所述的信号连接器，其特征在于，该些第一接脚对应于一通用序列总线 2.0 版本的接脚配置，该 USB 接头为一符合通用序列总线 2.0 版本规格的公接头。

8. 根据权利要求 6 所述的信号连接器，其特征在于，该些第一接脚对应于一通用序列总线 3.0 版本的接脚配置，该 USB 接头为一符合通用序列总线 3.0 版本规格的公接头。

9. 根据权利要求 1 所述的信号连接器，其特征在于，该些第一接脚的数目相等于该些第二接脚的数目，且该些第一接脚的数目大于该些 USB 接脚的数目。

10. 根据权利要求 9 所述的信号连接器，其特征在于，该些第一接脚对应于一通用序列总线 3.0 版本的接脚配置，该 USB 接头为一符合通用序列总线 2.0 版本规格的公接头。

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信号连接器

技术领域

[0001] 本实用新型是有关于一种连接器，且特别是有关于一种电子信号的连接器。

背景技术

[0002] 个人计算机的外部外围设备种类近年来渐趋丰富，各样的周边装置已充斥在市面上，例如鼠标、键盘、扫描仪、打印机、外接式随身碟、网络摄影机等等。已知所使用的并列连接端口以及序列连接端口，已经无法符合现今多种周边的连接需求。

[0003] 为了增加周边连接的弹性，业界推出通用序列总线 (Universal Serial Bus,USB) 接口。USB 接口具有支持热插拔、随插即用以及高速传输的优点，方便使用者连接多个周边装置。

[0004] 一般来说，周边装置是利用 USB 公接头来连接于计算机设备的 USB 母连接器。USB 接头及 USB 连接器上具有防呆设计，用以确保 USB 接头仅能以特定的单一方向插接于连接器。如此的设计是为了确保接头及连接器对接时，其中的多个电性接点可以正确对应电性连接。但是这种限制插接方向的设计方式，大大增加了使用上的不便性。

实用新型内容

[0005] 因此，本实用新型所要解决的技术问题在于提供一种信号连接器，以解决连接头只能由特定方向插接于连接器，造成使用上不便的问题。

[0006] 为了实现上述目的，本实用新型的一实施方式是在提供一种信号连接器。信号连接器至少包含一壳体以及一设置于壳体内的凸接部。一 USB 接头用以插接于壳体及凸接部之间。凸接部包含相对的一第一表面及一第二表面、多个第一接脚及多个第二接脚。第一接脚设置于第一表面，第二接脚设置于第二表面。当 USB 接头由一正方向插接于壳体及凸接部之间时，USB 接头的多个 USB 接脚接触于第一接脚。当 USB 接头由翻转 180 度后的一反方向插接于壳体及凸出部之间时，USB 接脚接触于第二接脚。

[0007] 依据本实用新型的一实施例，第一接脚对应于一通用序列总线规格的接脚配置。USB 接头为一 USB 公接头。第一接脚及 USB 接脚分别至少包含一数据接脚、一接地接脚及一电源接脚。当 USB 接头由正方向插接于壳体及凸接部之间时，第一接脚中的数据接脚、接地接脚及电源接脚分别对应接触于 USB 接脚中的数据接脚、接地接脚及电源接脚。

[0008] 依据本实用新型的另一实施例，第二接脚对应于一通用序列总线规格的接脚配置。USB 接头为一 USB 公接头。第二接脚及 USB 接脚分别至少包含一数据接脚、一接地接脚及一电源接脚。当 USB 接头由反方向插接于壳体及凸接部之间时，第二接脚中的数据接脚、接地接脚及电源接脚分别对应接触于 USB 接脚中的数据接脚、接地接脚及电源接脚。

[0009] 依据本实用新型的又一实施例，第一接脚的数目相等于第二接脚的数目，且第一接脚的数目相等于 USB 接脚的数目。第一接脚对应于一通用序列总线 2.0 版本的接脚配置，USB 接头为一符合通用序列总线 2.0 版本规格的公接头。

[0010] 依据本实用新型的再一实施例，第一接脚的数目相等于第二接脚的数目，且第一

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接脚的数目相等于USB接脚的数目。第一接脚对应于一通用序列总线3.0版本的接脚配置，USB接头为一符合通用序列总线3.0版本规格的公接头。

[0011] 依据本实用新型的另一实施例，第一接脚的数目相等于第二接脚的数目，且第一接脚的数目大于USB接脚的数目。第一接脚对应于一通用序列总线3.0版本的接脚配置，USB接头为一符合通用序列总线2.0版本规格的公接头。

[0012] 依照本实用新型实施例的信号连接器，利用在凸接部上配置有双面接脚的方式，使得连接头分别利用正向以及反相插接于连接器时，连接头的接脚可由接触于连接头上对应的接脚，借以传递信号。其具有可双面插接进而提升使用便利性，以及结构简单的优点。

附图说明

[0013] 为让本实用新型的上述和其它目的、特征、优点与实施例能更明显易懂，所附附图的说明如下：

[0014] 图1A绘示依照本实用新型一实施方式的一种信号连接的立体图；

[0015] 图1B绘示图1A中信号连接器的前视图；

[0016] 图2A绘示USB接头由正方向插接于连接器时的示意图；

[0017] 图2B绘示USB接头由反方向插接于连接器时的示意图；

[0018] 图3绘示偶数个第一接脚及偶数个第二接脚的电性连接方式的示意图；

[0019] 图4绘示奇数个第一接脚及奇数个第二接脚的电性连接方式的示意图。

[0020] 【主要组件符号说明】

[0021]	100：信号连接器	210：底板
[0022]	110：凸接部	211：USB接脚
[0023]	111：第一表面	211a：接地接脚
[0024]	112：第二表面	211b：数据接脚
[0025]	121：第一接脚	211c：数据接脚
[0026]	121a：接地接脚	211d：电源接脚
[0027]	121b：数据接脚	230：框体
[0028]	121c：数据接脚	321：第一接脚
[0029]	121d：电源接脚	321a～321d：第一接脚
[0030]	122：第二接脚	322：第二接脚
[0031]	122a：接地接脚	322a～322d：第二接脚
[0032]	122b：数据接脚	421：第一接脚
[0033]	122c：数据接脚	421a～421e：第一接脚
[0034]	122d：电源接脚	422：第二接脚
[0035]	130：壳体	422a～422e：第二接脚
[0036]	131：弹片	A1：法线方向
[0037]	200：USB接头	A2：法线方向

具体实施方式

[0038] 请同时参照图1A及1B，图1A绘示依照本实用新型一实施方式的一种信号连接的

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立体图，图 1B 绘示图 1A 中信号连接器的前视图。信号连接器 100 至少包含一壳体 130 以及一凸接部 110。在一实施例中，凸接部 110 的一侧连接于壳体 130，以将凸接部 110 设置于壳体 130 内。凸接部 110 非连接于壳体 130 的其它侧，与壳体 130 的内侧表面之间具有间距。壳体 130 与凸接部 110 之间具有一空间，用以插接一 USB 接头（未显示于图中）。也就是说，USB 接头用以插接于壳体 130 及凸接部 110 之间。

[0039] 凸接部 110 包含多个第一接脚 121、多个第二接脚 122 以及相对的一第一表面 111 及一第二表面 112。第一接脚 121 设置于第一表面 111。在一实施例中，这些第一接脚 121 为相互平行的长条状金属接脚，并且以两两具有间隔的方式配置于第一表面 111。另一方面，第二接脚 122 设置于第二表面 112。在一实施例中，这些第二接脚 122 是与第一接脚 121 相同，为相互平行的长条状金属接脚，并且以两两具有间隔的方式配置于第二表面 112。且在一实施例中，一个第一接脚 121 对应位于一个第二接脚 122 上。

[0040] 如图 1A 及 1B 所示，由凸接部 110 第一表面 111 的法线方向 A1 朝第一表面 111 观察，这些第一接脚 121 具有一第一配置方式。当由凸接部 110 第二表面 112 的法线方向 A2 朝第二表面 112 观察，这些第二接脚 122 具有一第二配置方式。第二配置方式相等于第一配置方式。

[0041] 请同时参照图 2A 及图 2B，图 2A 绘示 USB 接头由正方向插接于连接器时的示意图，图 2B 绘示 USB 接头由反方向插接于连接器时的示意图。USB 接头 200 用以插接于信号连接器 100，其包含一底板 210 及一框体 230。底板 210 设置于框体 230 内，并且位于框体 230 的一内侧表面上。USB 接头 200 还包含多个 USB 接脚 211，设置于底板 210 的一表面。此外，信号连接器 100 的壳体 130 还包含多个弹片 131，用以在 USB 接头 200 插接于信号连接器 100 时，抵靠于连接器 100 框体 230。其用以使 USB 接脚 211 紧密接触于凸接部 110 上的第一接脚 121 或第二接脚 122，并使 USB 接头 200 稳固地插接于信号连接器 100，避免两者发生相对晃动的问题。

[0042] 如图 2A 所示，当 USB 接头 200 由一正方向插接于壳体 130 及凸接部 110 之间时，USB 接头 200 的 USB 接脚 211 接触于第一接脚 121。信号接头 100 及 USB 接头 200 通过对应接触的各第一接脚 121 及各 USB 接脚 211，传递对应的信号。

[0043] 另一方面，当 USB 接头 200 翻转 180 度之后，USB 接头 200 仍旧可以插接于信号连接器 100。如图 2B 所示，当 USB 接头由翻转 180 度后的一反方向插接于壳体 130 及凸接部 110 之间时，USB 接脚 211 接触于第二接脚 122。信号接头 100 及 USB 接头 200 通过对应接触的各第一接脚 121 及各 USB 接脚 211，传递对应的信号。

[0044] 在一实施例中，这些第一接脚 121 对应于一 USB 规格的接脚配置，其包含一接地接脚 121a、两数据接脚 121b 及 121c，以及一电源接脚 121d。这些第二接脚 122 同样对应于 USB 规格的接脚配置，其包含一接地接脚 122a、两数据接脚 122b 及 122c，以及一电源接脚 121d。USB 接头 200 为一 USB 公接头，这些 USB 接脚 211 包含一接地接脚 211a、两数据接脚 211b 及 211c，以及一电源接脚 211d。这些第一接脚 121 的数目相等于这些第二接脚 122 的数目。

[0045] 当 USB 接头 200 由正方向插接于壳体 130 及凸接部 110 之间时（如图 2A 所示），USB 接脚 211 的接地接脚 211a、两数据接脚 211b 及 211c 以及电源接脚 211d，分别对应接触于第一接脚 121 的接地接脚 121a、两数据接脚 121b 及 121c 以及电源接脚 121d。另一方

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面，当USB接头200由反方向插接于壳体130及凸接部110之间时（如图2B所示），USB接脚211之接地接脚211a、两数据接脚211b及211c以及电源接脚211d，分别对应接触于第二接脚122的接地接脚122a、两数据接脚122b及122c以及电源接脚122d。

[0046] 在一实施例中，第一接脚121的数目相等于第二接脚122的数目，且第一接脚121的数目相等于USB接脚211的数目。举例来说，第一接脚121及第二接脚122分别对应于USB 2.0的接脚配置，各自具有四个脚位。USB接头200为符合USB 2.0规格的公接头，同样具有四个脚位。此外，第一接脚121及第二接脚122亦可分别对应于USB 3.0的接脚配置，各自具有对应USB 3.0的九个脚位，包含四个向下相容于USB 2.0的脚位，及五个高速脚位。USB接头200为符合USB 3.0规格的公接头，同样具有对应USB 3.0的五个脚位。

[0047] 在另一实施例中，第一接脚121的数目相等于第二接脚122的数目，且第一接脚121的数目大于USB接脚211的数目。举例来说，第一接脚121及第二接脚122各自具有对应USB 3.0的九个脚位。USB接头200为符合USB 2.0规格的公接头，具有四个脚位。

[0048] 请参照图3，其绘示偶数个第一接脚及偶数个第二接脚的电性连接方式的示意图。第一接脚321是以包含四个接脚321a～321d为例，第二接脚322是以包含四个接脚322a～322d为例。各第一接脚321位于各第二接脚322上方，且这些第一接脚321及这些第二接脚322之间，是以交错配置的方式信号连接。举例来说，图3中最左侧的第一接脚321a连接于最右侧的第二接脚322a。此外，中央两第一接脚321b及321c，与中央两第二接脚322c及322b交错连接。再者，最右侧的第一接脚321d连接于最左侧的第二接脚322d。

[0049] 请参照图4，其绘示奇数个第一接脚及奇数个第二接脚的电性连接方式的示意图。第一接脚421是以包含五个接脚421a～421e为例，第二接脚422是以包含五个接脚422a～422e为例。各第一接脚421位于各第二接脚422上方，且这些第一接脚421及这些第二接脚422之间，除中央的接脚外，是以交错配置的方式信号连接。举例来说，图4中最左侧的第一接脚421a连接于最右侧的第二接脚422a。再者，中间偏左的第一接脚421b连接于中间偏右的第二接脚422b。其次，中间偏右的第一接脚421d连接于中间偏左的第二接脚422d。此外，中央的第一接脚421c连接于中央的第二接脚422c。此外，最右侧的之第一接脚421e连接于最左侧的第二接脚422e。

[0050] 上述依照本发明实施例的信号连接器，利用设置于凸接部相对两表面上的第一接脚及第二接脚，使USB接头由正方向或反方向插接于信号连接器时，均可由对应接触的接脚传递信号于两者之间。信号连接器具有可双面插接、以及结构简单的优点。再者，信号连接器可兼容于一般USB 2.0及USB 3.0的公接头，大幅提升信号连接器的应用弹性及使用上的便利性。

[0051] 虽然本实用新型已以实施方式揭露如上，然其并非用以限定本实用新型，任何熟悉此技术的人员，在不脱离本实用新型的精神和范围内，当可作各种的更动与润饰，因此本实用新型的保护范围当视权利要求书所界定的范围为准。

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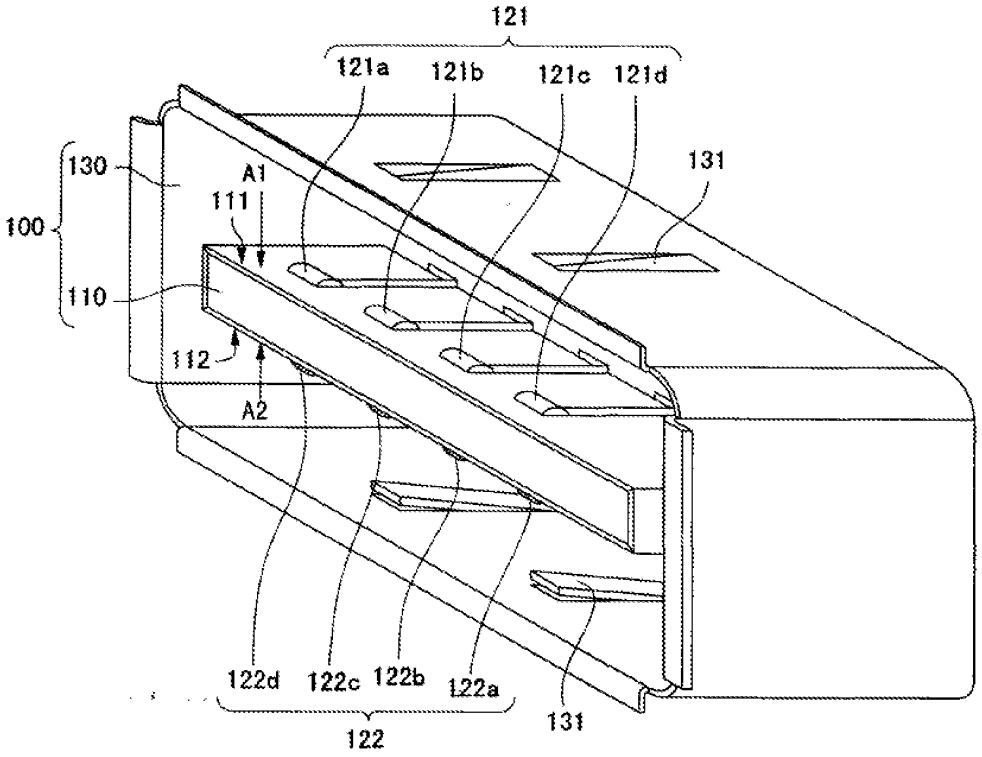


图 1A

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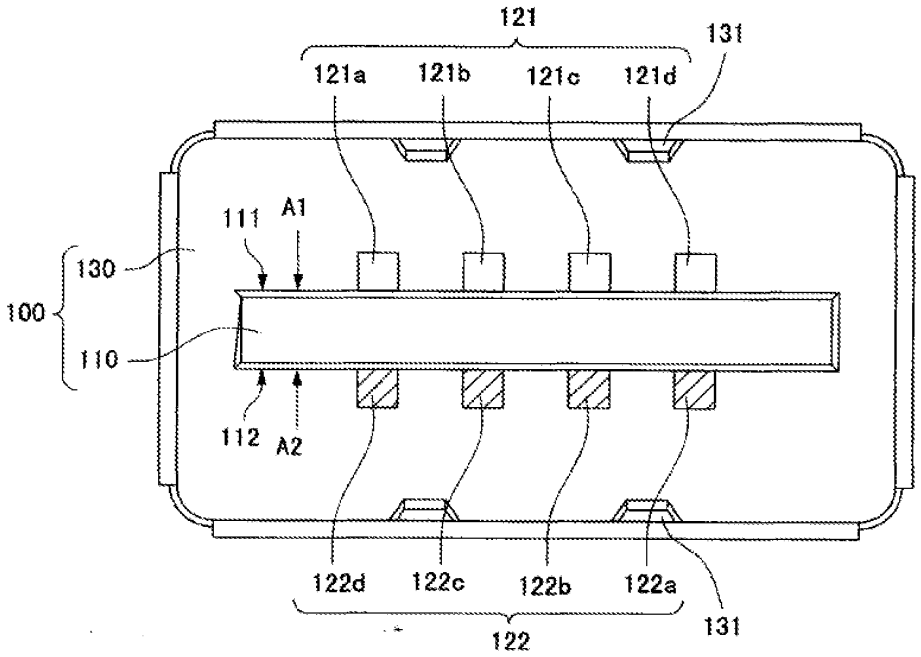


图 1B

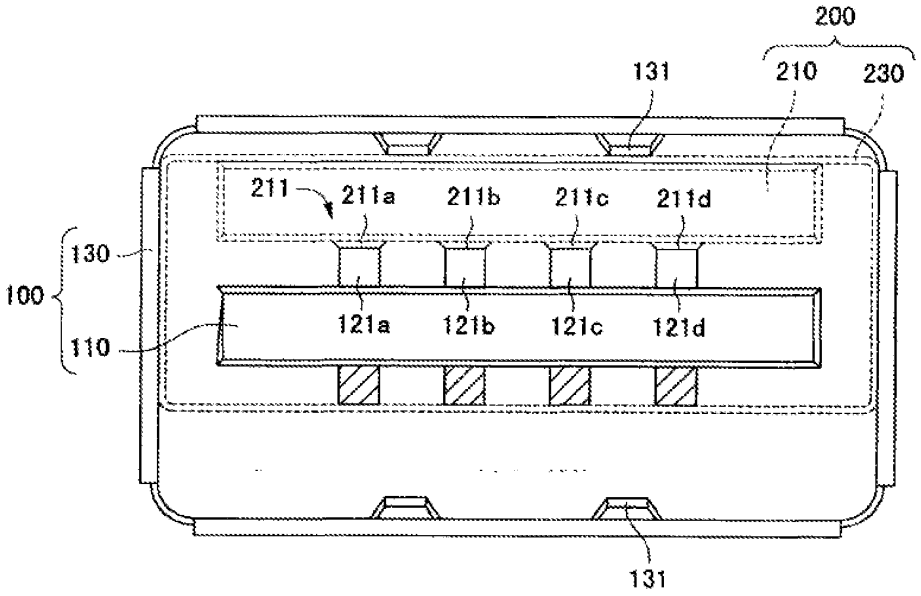


图 2A

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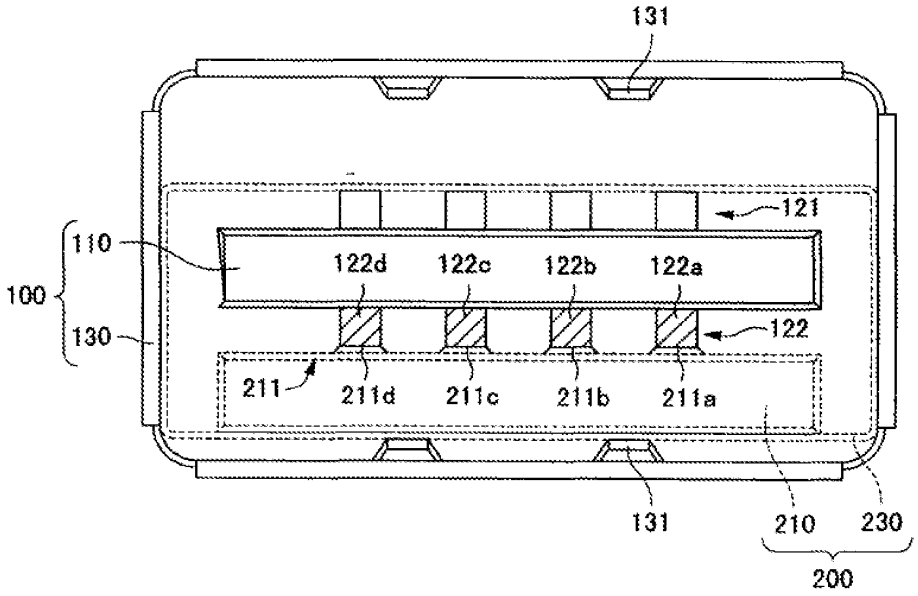


图 2B

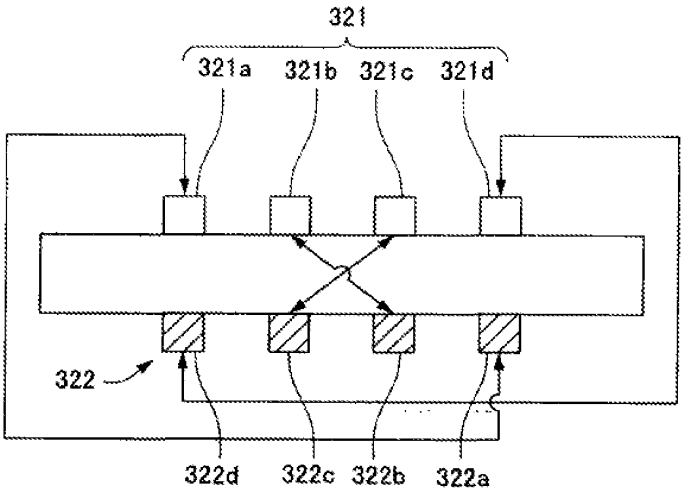


图 3

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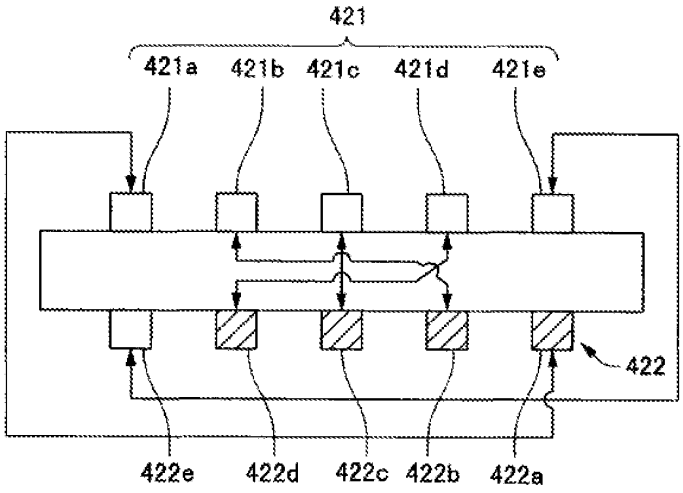


图 4

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Espacenet

CN201594633U Mini SAS interface connector

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Inventors: JINHUA LI

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Mini SAS interface connector

Abstract

The utility model relates to the technical field of computer fittings, and particularly relates to a mini SAS interface connector. The mini SAS interface connector comprises an external mold; a printed circuit board (PCB) is arranged inside the external mold; an internal mold is arranged between the external mold and the printed circuit board (PCB); the printed circuit board (PCB) is closely covered by the internal mold, to form an integrated structure; the internal mold is closely covered by the external mold, to form an integrated structure; and the printed circuit board (PCB) is closely and firmly combined with the internal mold and the external mold, so as to achieve non looseness, stable connection and long service life; an elastic lock catch is arranged at the top of the external mold; when the external mold is plugged, the external mold can be locked at the female interface through the elastic lock catch, so that the connection of a data wire is firm, and the data transmission is stable; moreover, when the connector needs to be extracted, the elastic lock catch is deformed through pressing the elastic lock catch to loosen the female interface, so that the connector can be easily extracted. Due to elastic deformation of the elastic lock catch, the utility model can conveniently lock the connector at the female interface or loosen the connector from the female interface, thereby achieving easy extraction and insertion between the connector and the female interface, and convenient use.

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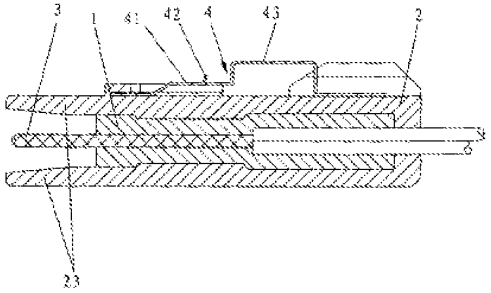
权利要求书 1 页 说明书 2 页 附图 2 页

(54)实用新型名称

迷你 SAS 接口连接器

(57)摘要

本实用新型涉及计算机配件技术领域，尤其涉及迷你 SAS 接口连接器，其包括有外模，外模的内部设有 PCB 板，外模与 PCB 板之间设有内模，内模紧密包覆 PCB 板形成一体式结构，外模紧密包覆内模形成一体式结构，PCB 板与内模、外模结合紧密牢固，不会松动，连接稳定，使用寿命长；外模的顶部设有弹性锁扣，插上外模时，弹性锁扣能够将外模锁固在母插接口上，使得数据线连接稳固、数据传输稳定，需要拔出连接器时，按压弹性锁扣使弹性锁扣变形松开母插接口，从而可以较容易地拔出连接器，本实用新型通过弹性锁扣的弹性变形可以方便地将连接器锁固在母插接口上或从母插接口上松开，连接器与母插接口之间拔插容易，使用方便。



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1. 迷你 SAS 接口连接器，它包括有外模 (2)，外模 (2) 的内部设有与数据连接导线连接的 PCB 板 (3)，其特征在于：所述外模 (2) 与 PCB 板 (3) 之间设有内模 (1)，内模 (1) 紧密包覆 PCB 板 (3) 形成一体式结构，外模 (2) 紧密包覆内模 (1) 形成一体式结构，外模 (2) 的顶部设有将外模 (2) 固定在与外模 (2) 插接配合的母插接口上的弹性锁扣 (4)。

2. 根据权利要求 1 所述的迷你 SAS 接口连接器，其特征在于：所述弹性锁扣 (4) 的为金属弹片，弹性锁扣 (4) 的前后两端分别与外模 (2) 连接，弹性锁扣 (4) 前后两端之间向上弯折拱起形成可以沿上下方向产生弹性变形的弹性部 (41)，变形扣部上向上冲压成型有用于卡住母插接口的卡钩 (42)。

3. 根据权利要求 2 所述的迷你 SAS 接口连接器，其特征在于：所述弹性部 (41) 的后端部分向上冲压成型有按压部 (43)。

4. 根据权利要求 2 所述的迷你 SAS 接口连接器，其特征在于：所述外模 (2) 的顶部设有滑槽 (21)，弹性锁扣 (4) 的前后两端分别插卡在滑槽 (21) 中。

5. 根据权利要求 1 所述的迷你 SAS 接口连接器，其特征在于：所述外模 (2) 的两侧设有防误插凸块 (22)。

6. 根据权利要求 1-5 任意一项所述的迷你 SAS 接口连接器，其特征在于：所述外模 (2) 前端的顶部和底部分别向前延伸出有护板 (23)，PCB 板 (3) 带有金手指的一端平行延伸至两块护板 (23) 之间。

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迷你 SAS 接口连接器

技术领域：

[0001] 本实用新型涉及计算机配件技术领域，尤其涉及迷你 SAS 接口连接器。

背景技术：

[0002] SAS(Serial Attached SCSI) 即串行连接 SCSI(Small ComputerSystem Interface，小型计算机系统接口)，是新一代的 SCSI 技术，其是在并行 SCSI 之后开发出来的全新接口技术。母插接口的设计是为了改善存储系统的效能、可用性和扩充性。

[0003] 现有用于插接在母插接口上的迷你 SAS 接口连接器包括有外模，外模的内部设有与数据连接导线连接的 PCB 板，将带有迷你 SAS 接口连接器的数据线的外模插在服务器主板、硬盘的母插接口上就可以进行数据传输，外模一般是通过与接口紧密接触而使外模锁定在接口上，因此外模插在接口上容易出现松动或过紧现象，导致接触不良或拔插困难，使用不方便，并且 PCB 板与外模之间为可拆分式连接结构，容易出现松动，连接不稳定，使用寿命短。

实用新型内容：

[0004] 本实用新型的目的就是针对现有技术存在的不足而提供一种外模与母插接口之间拔插容易、连接稳固、使用方便的迷你 SAS 接口连接器。

[0005] 为了实现上述目的，本实用新型采用的技术方案是：

[0006] 迷你 SAS 接口连接器，它包括有外模，外模的内部设有与数据连接导线连接的 PCB 板，外模与 PCB 板之间设有内模，内模紧密包覆 PCB 板形成一体式结构，外模紧密包覆内模形成一体式结构，外模的顶部设有将外模固定在与外模插接配合的母插接口上的弹性锁扣。

[0007] 所述弹性锁扣的为金属弹片，弹性锁扣的前后两端分别与外模连接，弹性锁扣前后两端之间向上弯折拱起形成可以沿上下方向产生弹性变形的弹性部，变形扣部上向上冲压成型有用于卡住母插接口的卡钩。

[0008] 所述弹性部的后端部分向上冲压成型有按压部。

[0009] 所述外模的顶部设有滑槽，弹性锁扣的前后两端分别插卡在滑槽中。

[0010] 所述外模的两侧设有防误插凸块。

[0011] 所述外模前端的顶部和底部分别向前延伸出有护板，PCB 板带有金手指的一端平行延伸至两块护板之间。

[0012] 本实用新型有益效果在于：

[0013] 本实用新型包括有外模，外模的内部设有与数据连接导线连接的 PCB 板，外模与 PCB 板之间设有内模，内模紧密包覆 PCB 板形成一体式结构，外模紧密包覆内模形成一体式结构，PCB 板与内模、外模结合紧密牢固，不会松动，连接稳定，使用寿命长；外模的顶部设有将外模固定在与外模插接配合的母插接口上的弹性锁扣，插上外模时，弹性锁扣能够将外模锁固在母插接口上，使得数据线连接稳固、数据传输稳定，需要拔出连接器时，按压弹

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性锁扣使弹性锁扣变形松开母插接口，从而可以较容易地拔出连接器，本实用新型通过弹性锁扣的弹性变形可以方便地将连接器锁固在母插接口上或从母插接口上松开，连接器与母插接口之间拔插容易，使用方便。

附图说明：

[0014] 图 1 是本实用新型的剖示图；

[0015] 图 2 是本实用新型外模的结构示意图；

[0016] 图 3 是本实用新型弹性锁扣的结构示意图。

具体实施方式：

[0017] 下面结合附图对本实用新型作进一步的说明，见图 1 ～ 3 所示，迷你 SAS 接口连接器，它包括有外模 2，外模 2 的内部设有与数据连接导线连接的 PCB 板 3，外模 2 与 PCB 板 3 之间设有内模 1，内模 1 紧密包覆 PCB 板 3 形成一体式结构，外模 2 紧密包覆内模 1 形成一体式结构。加工时，先在 PCB 板 3 的一端焊上焊点，再将数据连接导线的线焊接在金手指上；接着将 PCB 板 3 放入内模 1 的注塑模具中，再向注塑模具中注射熔融状态的原料形成内模 1，熔融的内模 1 紧密包覆 PCB 板 3，冷却后形成一体式结构；最后将 PCB 板 3 与内模 1 一起放入外模 2 的注塑模具中，再向注塑模具中注射熔融状态的原料形成外模 2，熔融的外模 2 紧密包覆内模 1，冷却后形成一体式结构。PCB 板 3 与内模 1、外模 2 结合紧密牢固，不会松动，连接稳定，使用寿命长。

[0018] 外模 2 的顶部设有将外模 2 固定在与外模 2 插接配合的母插接口上的弹性锁扣 4。弹性锁扣 4 的为金属弹片，弹性锁扣 4 的前后两端分别与外模 2 连接，弹性锁扣 4 前后两端之间向上弯折拱起形成可以沿上下方向产生弹性变形的弹性部 41，变形扣部上向上冲压成型有用于卡住母插接口的卡钩 42。弹性部 41 的后端部分向上冲压成型有按压部 43，按压弹性锁扣 4 的按压部 43 可以使弹性锁扣 4 向下变形而使卡钩 42 脱离接口。外模 2 的顶部设有滑槽 21，弹性锁扣 4 的前后两端分别插卡在滑槽 21 中，安装方便。

[0019] 外模 2 的两侧设有防误插凸块 22，防止外模 2 误插损坏数据线或接口。外模 2 前端的顶部和底部分别向前延伸出有护板 23，PCB 板 3 带有金手指的一端平行延伸至两块护板 23 之间。

[0020] 插上连接器时，弹性锁扣 4 能够将外模 2 锁固在母插接口上，弹性锁扣 4 的卡钩 42 卡住母插接口，防止连接器脱落，使得数据线连接稳固、数据传输稳定，需要拔出连接器时，按压弹性锁扣 4 的按压部 43 使弹性锁扣 4 变形松开接口，从而可以较容易地拔出连接器，本实用新型通过弹性锁扣 4 的弹性变形可以方便地将连接器锁固在母插接口上或从母插接口上松开，连接器与母插接口之间拔插容易，使用方便。

[0021] 当然，以上所述仅是本实用新型的较佳实施例，故凡依本实用新型专利申请范围所述的构造、特征及原理所做的等效变化或修饰，均包括于本实用新型专利申请范围内。

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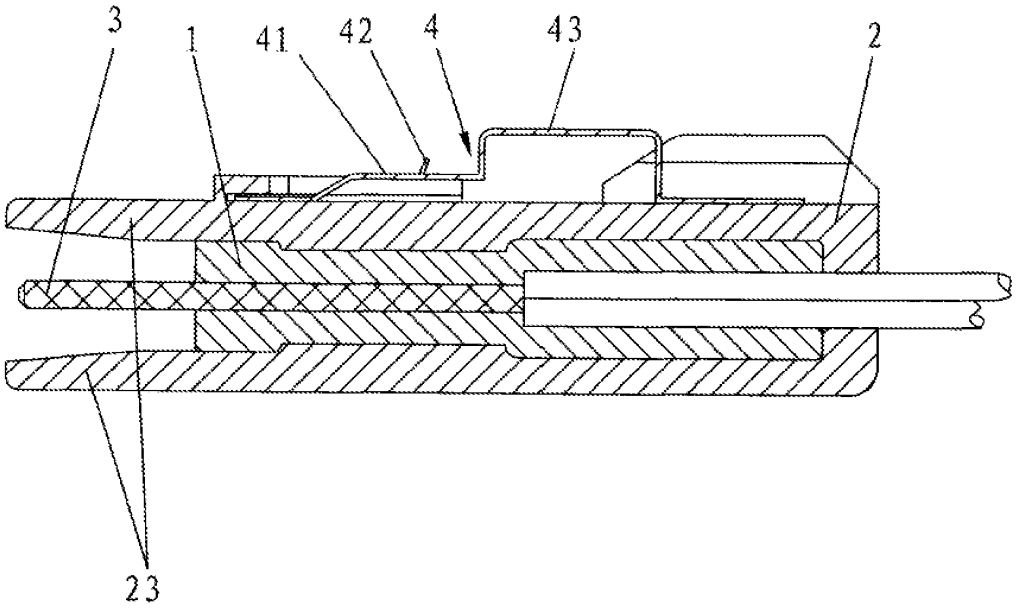


图 1

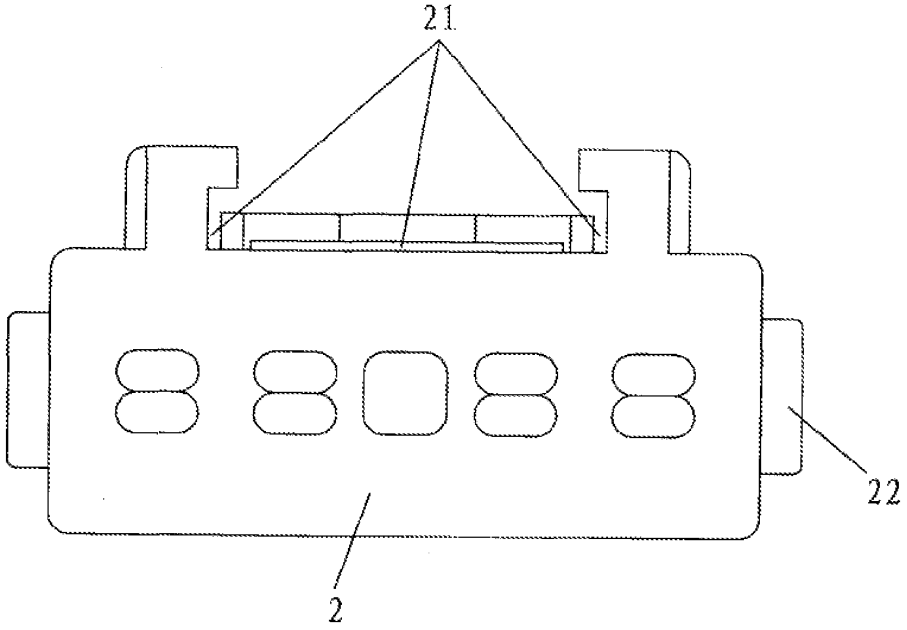


图 2

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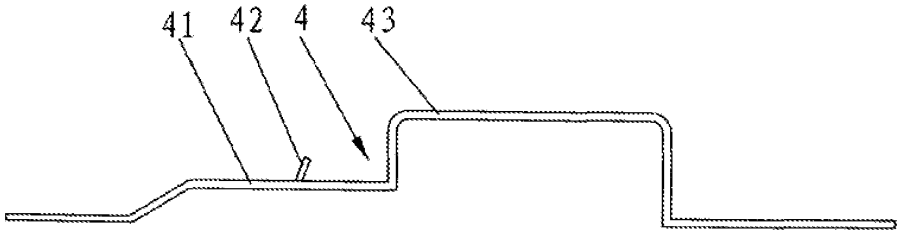


图 3

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Espacenet

CN201717389U USB connector

Applicants: ZTE CORP

Inventors: XUZHOU WANG

Classifications:
IPC ***H01R12/70; H01R13/46; H01R13/73;***

CPC **H01R12/722 (EP)**; H01R12/7047 (EP);

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USB connector

Abstract

The utility model discloses a USB connector, which comprises a USB shell. The USB connector is characterized by also comprising an insulating bracket with a groove, a USB signal transmitting golden finger to be connected with the USB interface of a PC computer and a printed circuit board, wherein the USB signal transmitting golden finger is arranged on the printed circuit board, the printed circuit board is inserted in the groove of the insulating bracket, and the insulating bracket is fixedly arranged in the USB shell. Since the USB signal transmitting golden finger is directly arranged on the printed circuit board, no USB signal transmitting pad is needed. Moreover, a positioning column can be improved to increase the utilization area of the printed circuit board, and thereby the size of the USB device is reduced, and the product reliability is improved.

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H01R 13/46(2006.01)
H01R 13/73(2006.01)

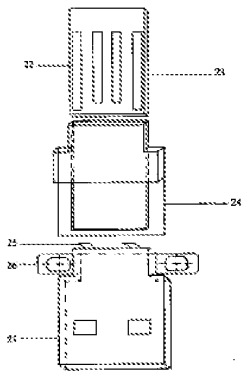
权利要求书 1 页 说明书 3 页 附图 2 页

(54)实用新型名称

一种USB接头

(57)摘要

本实用新型公开了一种USB接头，包括：USB外壳，其特征在于，还包括：带有凹槽的绝缘支架、用于与PC机USB接口相连接的USB传送信号金手指以及印刷电路板，其中，所述USB传送信号金手指安装在印刷电路板上，所述印刷电路板插在所述绝缘支架的凹槽内，所述绝缘支架固定设置在所述USB外壳中。通过将USB传送信号金手指直接设计在印刷电路板上，无需USB传送信号焊盘，并且对定位柱加以改进，从而增大了印刷电路板使用面积、减小了USB设备的体积，提高了产品的可靠性。



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1. 一种 USB 接头，包括：USB 外壳，其特征在于，还包括：带有凹槽的绝缘支架、用于与 PC 机 USB 接口相连接的 USB 传送信号金手指以及印刷电路板，其中，

所述 USB 传送信号金手指安装在印刷电路板上，所述印刷电路板插在所述绝缘支架的凹槽内，所述绝缘支架固定设置在所述 USB 外壳中。

2. 如权利要求 1 所述的 USB 接头，其特征在于，还包括：安装有可折弯的用于固定绝缘支架的金属挡片，设置在所述 USB 外壳底部。

3. 如权利要求 1 所述的 USB 接头，其特征在于，所述 USB 外壳上具有可提供 USB 外壳与外接产品固定的螺钉孔。

4. 如权利要求 1 所述的 USB 接头，其特征在于，所述绝缘支架的形状与所述 USB 外壳的形状匹配。

5. 如权利要求 1 所述的 USB 接头，其特征在于，所述印刷电路板为矩形，该矩形的长度与所述 USB 传送信号金手指的长度匹配。

6. 如权利要求 5 所述的 USB 接头，其特征在于，所述凹槽的长宽与印刷电路板的长宽匹配，所述凹槽的深度与印刷电路板的厚度匹配。

7. 如权利要求 1 所述的 USB 接头，其特征在于，所述 USB 外壳的形状以及插入印刷电路板的绝缘支架的形状满足 USB 接头工业标准要求。

8. 如权利要求 1 所述的 USB 接头，其特征在于，所述 USB 外壳为金属材质。

9. 如权利要求 1 所述的 USB 接头，其特征在于，所述绝缘支架为塑胶材质。

10. 如权利要求 1 所述的 USB 接头，其特征在于，所述 USB 传送信号金手指为印刷电路板上的部分金属芯，或，

所述 USB 传送信号金手指为设置并固定在印刷电路板上的金属部件。

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一种 USB 接头

技术领域

[0001] 本实用新型涉及 USB 设备，特别是涉及一种 USB 接头。

背景技术

[0002] 进入 21 世纪以来尤其是最近三、四年，随着大量支持 USB 设备 PC 机的普及，USB 逐步成为 PC 机的标准接口已经是大势所趋。在主机端，最新推出的 PC 机 100％支持 USB 接口；而在外设端，使用 USB 接口的设备也与日俱增，例如 3G 上网卡、数码相机、扫描仪、游戏杆和图像设备、打印机、键盘、鼠标等等。USB 的工业标准是对 PC 机现有的体系结构的扩充。USB 设备之所以会被迅速推广，主要具有以下优点：一是支持热插拔，不用重启系统；二是体积小，携带方便；三是提供一个标准接口，广泛接纳各种设备；四是价格低廉，支持最高 480M 比特率数据传输；五是赋予 PC 机新的功能，使之可以接纳许多新设备；六是协议灵活，兼容了不同设备的技术。

[0003] 目前市场上的 USB 接头有直插式、旋转式两种，其中直插式占据市场多数份额。下面就以直插式 USB 接头为例，介绍一下现有技术中 USB 接头的实现方式。图 1 为直插式 USB 接头的结构示意图。该 USB 接头包括 USB 外壳钢片 11、USB 传送信号金手指 12、USB 传送信号焊盘 13、塑胶支架 14 和定位柱 15。其中，USB 外壳钢片 11 为长方体形状，其上固定有塑胶支架 14。USB 传送信号金手指 12 和 USB 传送信号焊盘 13 通过一定方式固定在塑胶支架 14 上，USB 传送信号金手指 12 用于与 PC 机的 USB 接口接触，USB 传送信号焊盘 13 与使用该 USB 接头的产品内部的印刷电路板接触，而 USB 传送信号金手指 12 和 USB 传送信号焊盘 13 之间可以相互传送信号，从而实现使用该 USB 接头的产品与 PC 机之间的信号传递。定位柱 15 位于 USB 外壳钢片 11 末端的内部，并固定在使用该 USB 接头的产品内部的印刷电路板上，用于将该 USB 接头固定在使用该 USB 接头的产品上。从对图 1 的描述中可以看出，直插式 USB 接头末端的 USB 传送信号焊盘 13 和定位柱 15 需要占用印刷电路板很多空间，导致产品设计时不够灵活、成本高、体积大；对于采取旋转头设计的产品，由于旋转头外露部分，即插入 USB 接口部分，未做有效保护，插拔次数过多会损坏 USB 接口，造成接触不良等故障，对产品的安全性、可靠性造成不良影响。因此，现有技术存在如下缺陷：直插式 USB 接头因为占据印刷电路板空间过多，导致产品不够灵活，成本高，体积大，给用户带来诸多不便，例如，当 PC 机上有两个相邻的 USB 接口时，采用现有的直插式 USB 接头的产品插入其中一个 USB 接口后，因其体积较大，导致另外一个 USB 接口虽未占用，但也无法插入其他外设；而采取旋转头设计的 USB 接头的产品，由于插入 USB 接口部分未做有效保护，导致产品可靠性不高，容易损坏。

实用新型内容

[0004] 本实用新型实施例提供一种 USB 接头，该 USB 接头可使产品的体积更小、更轻便，而且可靠性高，不易损坏。

[0005] 一种 USB 接头，包括：USB 外壳，还包括：带有凹槽的绝缘支架、用于与 PC 机 USB 接

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口相连接的USB传送信号金手指以及印刷电路板，其中，

[0006] 所述USB传送信号金手指安装在印刷电路板上，所述印刷电路板插在所述绝缘支架的凹槽内，所述绝缘支架固定设置在所述USB外壳中。

[0007] 本实用新型实施例中的USB接头，通过将USB传送信号金手指直接设计在印刷电路板上，无需USB传送信号焊盘，从而增大了印刷电路板使用面积、减小了USB设备的体积，提高了产品的可靠性。

附图说明

[0008] 图1为现有技术中直插式USB接头的结构示意图；

[0009] 图2为本实用新型实施例中USB接头的结构示意图。

具体实施方式

[0010] 本实用新型实施例提供了一种USB接头，可以增大印刷电路板使用面积、减小USB设备的体积，提高产品的可靠性。

[0011] 一种USB接头，包括：USB外壳，还包括：带有凹槽的绝缘支架、用于与PC机USB接口相连接的USB传送信号金手指以及印刷电路板，其中，所述USB传送信号金手指安装在印刷电路板上，所述印刷电路板插在所述绝缘支架的凹槽内，所述绝缘支架固定设置在所述USB外壳中。其中，所述USB传送信号金手指安装在印刷电路板上的实现方式包括：所述USB传送信号金手指为印刷电路板上的部分金属芯，或，

[0012] 所述USB传送信号金手指为设置并固定在印刷电路板上的金属部件。

[0013] 较佳的，所述USB接头还安装有可折弯的用于固定绝缘支架的金属挡片，设置在所述USB外壳底部。所述USB外壳底部是指USB外壳与外接产品相连的部分，外接产品即使用该USB接头的产品。

[0014] 较佳的，所述USB外壳上具有可提供USB外壳与外接产品固定的螺钉孔。

[0015] 较佳的，所述绝缘支架的形状与所述USB外壳的形状匹配，匹配是指绝缘支架的形状大小恰好插入USB外壳。

[0016] 较佳的，所述印刷电路板为矩形，该矩形的长宽与所述USB传送信号金手指的长宽匹配，匹配是指该矩形的长度与所述USB传送信号金手指的长度基本一致。

[0017] 较佳的，所述凹槽的长宽与印刷电路板的长宽匹配，所述凹槽的深度与印刷电路板的厚度匹配，匹配是指凹槽的长宽和深度恰好可以插入印刷电路板。

[0018] 较佳的，所述USB外壳的形状以及插入印刷电路板的绝缘支架的形状满足USB接头工业标准要求。

[0019] 较佳的，所述USB外壳为金属材质。

[0020] 较佳的，所述绝缘支架为塑胶材质。

[0021] 通过将USB传送信号金手指直接设计在印刷电路板上，无需USB传送信号焊盘，并且对定位柱加以改进，从而增大了印刷电路板使用面积、减小了USB设备的体积，提高了产品的可靠性。

[0022] 下面，结合一个优选实施例来详细描述本实用新型中的USB接头。

[0023] 本实用新型实施例提供了一种USB接头，如图2所示，包括USB外壳钢片21、塑胶

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支架 24、印刷电路板 23、USB 传送信号金手指 22、金属挡片 25 以及螺钉孔 26。其中，USB 外壳钢片 21 的形状如图 2 所示，USB 外壳钢片 21 用于固定塑胶支架 24 并保护印刷电路板，且 USB 外壳钢片 21 的形状和大小要满足 USB 接头工业标准要求。在 USB 外壳钢片 21 末端，即 USB 外壳钢片与使用该 USB 接头的产品相连接的一端，还设置有螺钉孔 26，该螺钉孔 26 在设计时可以设计成与 USB 外壳钢片 21 是一体的，用于将 USB 接头固定在使用该接头的产品上。印刷电路板 23 与使用该 USB 接头的产品内部的印刷电路板是连为一体的，可以理解为在制作产品时，将产品内部的印刷电路板增加一块面积，用于实现本实用新型中的 USB 接头。印刷电路板 23 按照 USB 标准长宽尺寸设计，在其上安装有 USB 传送信号金手指 22，因此，USB 传送信号金手指 22 可通过印刷电路板 23 直接实现使用该 USB 接头的产品与 PC 机之间的信号传递，而无需 USB 传送信号焊盘，因而，可以增大印刷电路板使用面积、减小 USB 设备体积。其中，在印刷电路板 23 上安装 USB 传送信号金手指 22 的实现方式包括：印刷电路板 23 包括金属芯和绝缘片，则 USB 传送信号金手指 22 为印刷电路板 23 上的部分金属芯，或者，USB 传送信号金手指 22 为额外设置并固定在印刷电路板 23 上的金属部件，如金属片。为了连接印刷电路板 23 与 USB 外壳钢片 21，本实用新型实施例中的 USB 接头中还设置有塑胶支架 24。塑胶支架 24 的形状如图 2 中所示，塑胶支架的形状恰好与 USB 外壳钢片 21 的形状相吻合，从而可以恰好插入 USB 外壳钢片 21 的内部。在塑胶支架 24 上，还设置有一个凹槽，用于插入印刷电路板 23，所以，该凹槽的长宽恰等于印刷电路板 23 的长宽，该凹槽的深度恰等于印刷电路板 23 的厚度。在实际设计中，可将塑胶支架 24 插入 USB 外壳钢片 21 并固定，然后在塑胶支架的凹槽内部再插入印刷电路板。为了更好的固定塑胶支架 24，还可以在 USB 外壳钢片的底部设置金属挡片 25，金属挡片 25 用于固定塑胶支架 24，当塑胶支架 24 完全插入 USB 外壳钢片 21 之后，可将金属挡片 25 折弯，例如折弯 90 度，使其刚好抵住塑胶支架 24 的末端，因此，塑胶支架 24 不会向 USB 外壳末端方向滑脱，为了更加稳妥的固定塑胶支架 24，还要采用一定的工艺措施将塑胶支架 24 固定在 USB 外壳钢片内部，使其不会上下滑动。

[0024] 本实用新型实施例中的 USB 接头，通过直接将 USB 传送信号金手指设置在印刷电路板上，使 USB 传送信号金手指可以直接通过印刷电路板与使用该 USB 接头的产品实现信息传递，从而省去了现有技术中与印刷电路板相连、起桥梁作用的 USB 传送信号焊盘，从而减小了 USB 接头的体积；并通过将 USB 接头固定在外接产品上的螺钉孔代替将 USB 接头固定在产品的印刷电路板上的定位柱的方式，大大增大了印刷电路板使用面积，而且，有 USB 外壳钢片进行保护，也提高了产品的可靠性。

[0025] 显然，本领域的技术人员可以对本实用新型进行各种改动和变型而不脱离本实用新型的精神和范围。这样，倘若本实用新型的这些修改和变型属于实用新型权利要求及其等同技术的范围之内，则本实用新型也意图包含这些改动和变型在内。

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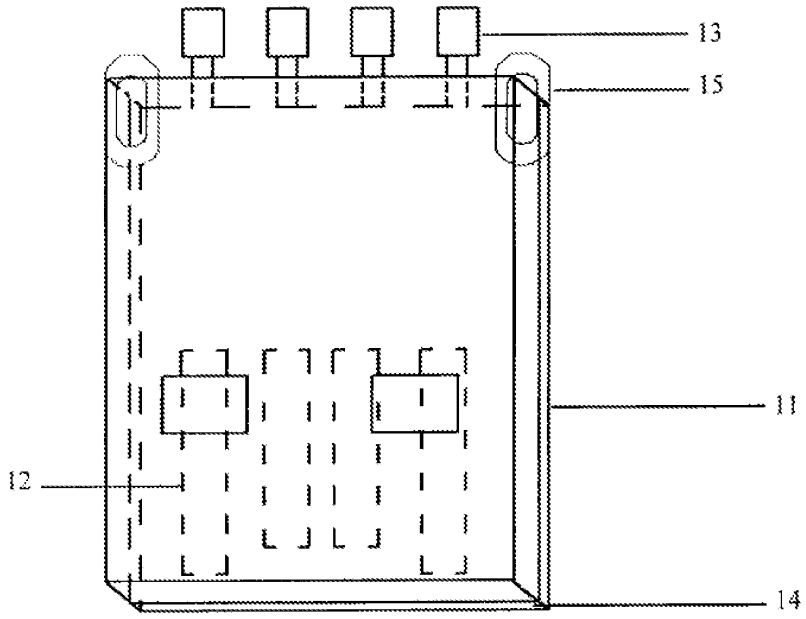


图 1

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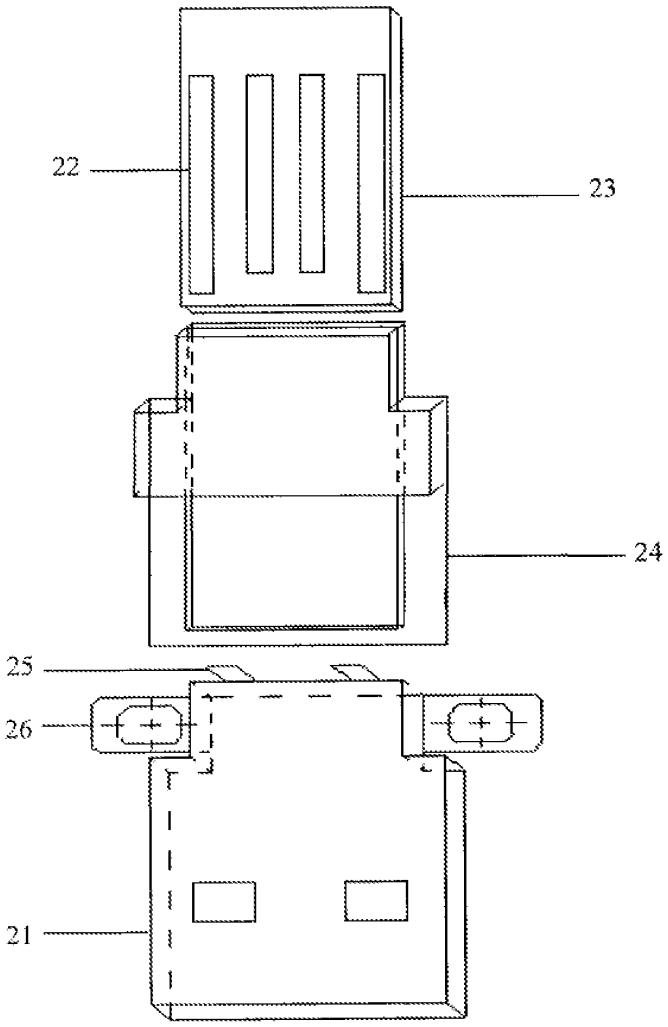


图 2

Samsung, EX1019, p. 393

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28 November 2007 (28.11.2007)

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60/867,614 29 November 2006 (29.11.2006) US

(71) Applicant *(for all designated States except US)*: **WALLETEX MICROELECTRONICS LTD.** [IL/IL]; 33 Lazarov Street, 75654 Rishon Lezion (IL).

(72) Inventor; and
(75) Inventor/Applicant *(for US only)*: **COHEN, Yohan** [IL/IL]; 7/10 Sokolov Street, 45289 Hod Hasharon (IL).

(74) Agent: **REINHOLD COHN AND PARTNERS**; P.O. Box 4060, 61040 Tel Aviv (IL).

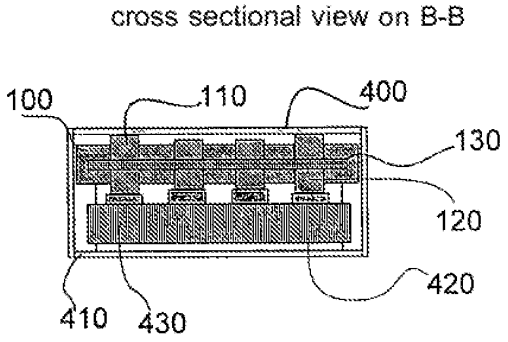
(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, **AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,** CA, **CH,** CN, **CO, CR, CU, CZ, DE, DK, DM, DO, DZ,** EC, **EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ,** NA, **NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM,** TN, **TR,** TT, **TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW**

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Published:
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

(88) Date of publication of the international search report:
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(54) Title: MALE DATA COMMUNICATION CONNECTOR HAVING CONTACTS OF DIFFERENT HEIGHT



(57) Abstract: A multi-contact connector (100) having a set of contacts (110, 120) supported on a planar substrate (130) in proper spatial alignment for engaging corresponding contacts (420) of a female receptacle (400) having an internal shield (410). At least one contact in the contact set has an active surface that is offset relative to the planar substrate by a greater distance than the respective active surfaces of other contacts in the contact set so as to mechanically create a space between the shield and the other contacts of the contact set when the connector is inserted within the receptacle. A pair of contact sets may also be provided, each on an opposite surface of the planar substrate.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/IL2007/001470

A. CLASSIFICATION OF SUBJECT MATTER
INV. H01R13/26 H01R13/62 H01R13/658

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/042930 A1 (HARKABI DAN [IL] ET AL) 24 February 2005 (2005-02-24) paragraphs [0037] - [0039]; figures 7-9; table 1	11,16, 17,21,24
A	paragraph [0037] - paragraph [0039]; figures 7-9; table 1	1
Y	US 6 854 984 B1 (LEE EDWARD W [US] ET AL) 15 February 2005 (2005-02-15)	11-16,21
A	column 1, line 8 - line 10 figures 3,4A,6A,6D	1
Y	EP 0 036 770 A (PINTEK INC [US]) 30 September 1981 (1981-09-30) page 5, line 5 - line 6; figure 1	11-17, 21,23

-/--

[X] Further documents are listed in the continuation of Box C. [X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 May 2008	19/05/2008

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Garcia Congosto, M

INTERNATIONAL SEARCH REPORT

International application No
PCT/IL2007/001470

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 319 070 B1 (TAN ZUOXI [CN]) 20 November 2001 (2001-11-20) figure 1	11
A	US 5 600 544 A (THALHAMMER ERICH [DE]) 4 February 1997 (1997-02-04) figure 1	11
X	US 2004/224539 A1 (BOYD SCOTT J [US] ET AL) 11 November 2004 (2004-11-11) paragraphs [0025], [0026], [0032]	22,28
Y		16,23,24

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL2007/001470

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. [ ] Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. [ ] Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. [ ] Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. [X] As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.

2. [ ] As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. [ ] As only some of the required additional search fees were timely paid by the applicant, this international search reportcovers only those claims for which fees were paid, specifically claims Nos.:

4. [ ] No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

[ ] The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

[ ] The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

[ ] No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-10

"A male multi-contact data connector having two sets of contacts supported on opposite surfaces of a planar substrate, respective contacts in each contact set being in proper spatial alignment for engaging corresponding contacts of a female receptacle having an internal shield and a single set of contacts that is compatible with either one of said sets of contacts, wherein: corresponding contacts in each set are spatially aligned in anti-phase relationship so as to allow the connector to be connected in two opposed orientations to said female receptacle".

---

2. claims: 11-21

"A multi-contact male data communication connector having no outer shield and comprising at least one shield contact configured to connect electrically to the internal shield of a female receptacle when the connector is inserted into the female receptacle".

---

3. claims: 22-28

"A male data communication connector comprising a magnet for securing electrical contact of the connector with a receptacle".

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/IL2007/001470

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 2005042930 A1	24-02-2005	NONE		
US 6854984 B1	15-02-2005	US RE40118	E1	26-02-2008
		us 2005059301	A1	17-03-2005
		us 7104848	B1	12-09-2006
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		CN 1086635	A	11-05-1994
		DE 59303369	D1	05-09-1996
		WO 9410726	A1	11-05-1994
		JP 8502622	T	19-03-1996
US 2004224539 A1	11-11-2004	US 2006035480	A1	16-02-2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 2833
Chou Hsien Tsai	)	Confirmation No.: 8163
Serial No.: 17/020,359	)	Examiner:
Filed: September 14, 2020	)	SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
Atty. File No.: 10186PAT-1-REI	)	
Entitled: "SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION"	)	*Electronically Submitted*

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

The references cited on attached Form PTO/SB08 are being called to the attention of the Examiner.

☒ Copies of the cited non-patent and/or foreign references are enclosed herewith.

☐ Copies of the cited U.S. patents and/or patent applications are enclosed herewith.

☒ Copies of the cited U.S. patents/patent application publications are not enclosed in accordance with 37 C.F.R. § 1.98(a).

☐ Copies of the cited references are not enclosed, in accordance with 37 C.F.R. § 1.98(d), because the references were cited by or submitted to the U.S. Patent and Trademark Office in prior application Serial No. _____ filed _____, which is relied upon for an earlier filing date under 35 U.S.C. § 120.

☒ To the best of applicants' belief, the pertinence of the foreign-language references is believed to be summarized in the attached English abstracts and/or in the figures, although applicants do not necessarily vouch for the accuracy of the translation.

☐ Examiner's attention is drawn to the following related applications:

Serial No. _____ filed _____ (Attorney Ref. No. _____)

Serial No. _____ filed _____ (Attorney Ref. No. _____)

☐ Other:_____

Submission of the above information is not intended as an admission that any item is citable under the statutes or rules to support a rejection, that any item disclosed represents analogous art, or that those skilled in the art would refer to or recognize the pertinence of any

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reference without the benefit of hindsight, nor should an inference be drawn as to the pertinence of the references based on the order in which they are presented. Submission of this statement should not be taken as an indication that a search has been conducted, or that no better art exists.

It is respectfully requested that the cited information be expressly considered during the prosecution of this application and the references made of record therein.

FEES

☒	**37 CFR 1.97(b)**: No fee is believed due in connection with this submission, because the information disclosure statement submitted herewith is satisfied by one of the following conditions ("X" indicates satisfaction): ☒ Within three months of the filing date of a national application other than a continued prosecution application under 37 CFR 1.53(d), or ☐ Within three months of the date of entry of the national stage as set forth in § 1.491 in an international application, or ☐ Before the mailing date of a first Office Action on the merits, or ☐ Before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970.
☐	**37 CFR 1.97(c)**: The information disclosure statement transmitted herewith is being filed after all the above conditions (37 CFR 1.97(b)), but before the mailing date of any one of the following conditions: (1) a final action under 37 C.F.R. 1.113, or (2) a notice of allowance under 37 C.F.R. 1.311, or (3) an action that otherwise closes prosecution in the application. This Information Disclosure Statement is accompanied by: ☐ A Certification (below) as specified by 37 C.F.R. 1.97(e). Although no fee is believed due, if any fee is deemed due in connection with this submission, please charge such fee to Deposit Account 19-1970. OR ☐ Please charge Deposit Account 19-1970 in the amount of $120.00 for the fee set forth in 37 C.F.R. 1.17(p) for submission of an information disclosure statement. Please credit any overpayment or charge any underpayment to Deposit Account 19-1970.
☐	**37 CFR 1.97(d)**: This Information Disclosure Statement is being submitted after the period specified in 37 CFR 1.97(c). ☐ This information Disclosure Statement includes a Certification (below) as specified by 37 C.F.R. 1.97(e) AND ☐ Applicants hereby requests consideration of the reference(s) disclosed herein. Please charge Deposit Account 19-1970 in the amount of $120.00 under 37 C.F.R. 1.17(p). Please credit any overpayment or charge any underpayment to Deposit Account 19-1970. Election to pay the fee should not be taken as an indication that applicant(s) cannot execute a certification.

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Certification (37 C.F.R. 1.97(e))
(Applicable only if checked)

☐ The undersigned certifies that:

☐ Each item of information contained in the Information Disclosure Statement submitted herewith 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 this statement. 37 C.F.R. 1.97(e)(1).

☐ A copy of the communication from the foreign patent office is enclosed.

OR

☐ No item of information contained in the Information Disclosure Statement submitted herewith was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the undersigned after making reasonable inquiry, no item of information contained in the Information Disclosure Statement was known to any individual designated in 37 C.F.R. 1.56(c) more than three months prior to the filing of this statement. 37 C.F.R. 1.97(e)(2).

Respectfully submitted,

SHERIDAN ROSS P.C.

By: /Jason H. Vick/
Jason H. Vick
Registration No. 45285
1560 Broadway, Suite 1200
Denver, Colorado 80202-5141
(303) 863-9700

Date: September 18, 2020

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of: Chou Hsien Tsai	)	Group Art Unit: 3992
Application No.: 17/020,359	)	Examiner: PATEL, HETUL B
Filed: September 14, 2020	)	Confirmation No.: 8163
Atty. File No.: 10186PAT-1-REI	)	

For: SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

REQUEST FOR CORRECTED FILING RECEIPT

Dear Commissioner:

The Filing Receipt dated September 16, 2020 in the above-referenced patent application contains the following errors:

In the section entitled **"Foreign Applications"**, the correction should read as follows:

TAIWAN 099100847 01/13/2010
TAIWAN 098210021 06/05/2009
TAIWAN 098117405 05/26/2009
TAIWAN 098112573 ~~04/16/2009~~ 04/15/2009

The Application Data Sheet filed September 14, 2020 contains the correct Foreign Application information. For your reference, a copy of the Application Data Sheet and the marked-up Filing Receipt is submitted herewith.

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Applicants believe that no fees are due for requesting this correction. However, the Commissioner is hereby authorized to charge any underpayment, or credit any overpayment, to Deposit Account No. 19-1970, in connection with this request.

Respectfully submitted,

SHERIDAN ROSS P.C.

Date: September 16, 2020

By: /Jason H. Vick/

Jason H. Vick
Reg. No. 45,285
1560 Broadway, Suite 1200
Denver, Colorado 80202
Telephone: 303-863-9700
jvick@sheridanross.com

Samsung, EX1019, p. 404

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/020,359	09/14/2020	2833	2830	10186PAT-1-REI	45	3

CONFIRMATION NO. 8163

FILING RECEIPT

22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202

Date Mailed: 09/16/2020

Receipt is acknowledged of this reissue 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)

Chou Hsien Tsai, New Taipei City, TAIWAN;

Applicant(s)

KIWI CONNECTION, LLC, Waco, TX, Assignee (with 37 CFR 1.172 Interest);

Power of Attorney: The patent practitioners associated with Customer Number 22442

Domestic Priority data as claimed by applicant

This application is a REI of 12/759,408 04/13/2010 PAT 8198563

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
TAIWAN 099100847 01/13/2010
TAIWAN 098210021 06/05/2009
TAIWAN 098117405 05/26/2009
TAIWAN 098112573 ~~04/16/2009~~ **04/15/2009**

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.

Samsung, EX1019, p. 405

If Required, Foreign Filing License Granted: 09/15/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/020,359**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **
Title

SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Preliminary Class

439

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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LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

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).

SelectUSA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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
	Chou Hsien		Tsai	

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

City	New Taipei City	Country of Residence [i]	TW

Mailing Address of Inventor:

Address 1	8F.-2, No. 1, Wuquan 1st Rd.		
Address 2	Xinzhuang Dist.		
City	New Taipei City	**State/Province**	
Postal Code	242	**Country** [i]	TW

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

Correspondence Information:

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	22442		
Email Address	jvick@sheridanross.com	Add Email	Remove Email

Application Information:

Title of the Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION		
Attorney Docket Number	10186PAT-1-REI	**Small Entity Status Claimed**	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	29	**Suggested Figure for Publication (if any)**	

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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)
Customer Number	22442		

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	Patented			Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)	Patent Number	Issue Date (YYYY-MM-DD)
	reissued of	12/759408	2010-04-13	8198563	2012-06-12

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

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	Application Number	
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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)
099100847	TW	2010-01-13	
Remove			
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
098210021	TW	2009-06-05	
Remove			
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
098117405	TW	2009-05-26	
Remove			
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
098112573	TW	2009-04-15	

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

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 Number	
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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	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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

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	KIWI CONNECTION, LLC		
Mailing Address Information For Applicant:			
Address 1	7215 Bosque Blvd		
Address 2	Suite a-#102		
City	Waco	**State/Province**	TX
Country	US	Postal Code	76710
Phone Number		Fax Number	
Email Address			

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

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	10186PAT-1-REI
	Application Number	
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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.

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

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1			
Address 2			
City		**State/Province**	
Country i		Postal Code	
Phone Number		Fax Number	
Email Address			

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

Signature:

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	/Jason H. Vick/			Date (YYYY-MM-DD)	2020-09-14
First Name	Jason H.	Last Name	Vick	Registration Number	45285

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

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	10186PAT-1-REI
	Application Number	
Title of Invention	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION	

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.

Electronic Acknowledgement Receipt

EFS ID:	40573271
Application Number:	17020359
International Application Number:	
Confirmation Number:	8163
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
Filer:	Jason Vick/Joanne Vos
Filer Authorized By:	Jason Vick
Attorney Docket Number:	10186PAT-1-REI
Receipt Date:	16-SEP-2020
Filing Date:	14-SEP-2020
Time Stamp:	12:54:12
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	Request for Corrected Filing Receipt	Request_for_Corrected_Filing_Receipt.pdf	4126212 cdcd6866a282d59f7685bc0317a971eff55e6b6b	no	13

Warnings:

Information:	
Total Files Size (in bytes):	4126212

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.

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
17/020,359	09/14/2020	2833	2830	10186PAT-1-REI	45	3

CONFIRMATION NO. 8163

FILING RECEIPT

22442
Sheridan Ross PC
1560 Broadway
Suite 1200
Denver, CO 80202



Date Mailed: 09/16/2020

Receipt is acknowledged of this reissue 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)

Chou Hsien Tsai, New Taipei City, TAIWAN;

Applicant(s)

KIWI CONNECTION, LLC, Waco, TX, Assignee (with 37 CFR 1.172 Interest);

Power of Attorney: The patent practitioners associated with Customer Number 22442

Domestic Priority data as claimed by applicant

This application is a REI of 12/759,408 04/13/2010 PAT 8198563

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
TAIWAN 099100847 01/13/2010
TAIWAN 098210021 06/05/2009
TAIWAN 098117405 05/26/2009
TAIWAN 098112573 04/16/2009

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: 09/15/2020

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 17/020,359**

Projected Publication Date: None, application is not eligible for pre-grant publication

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION

Preliminary Class

439

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).

Samsung, EX1019, p. 419

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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.

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET

Substitute for Form PTO-1360
(For use with Form PTO/SB/06)

Application Number	Filing Date
17020359	

Applicant(s) Chou Hsien Tsai

* May be used for additional claims or amendments

CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT	
	Indep	Depend	Indep	Depend	Indep	Depend
1	1					
2		1				
3		1				
4		1				
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47		1				
48		1				
49		1				
50	1					
Total Indep	3		0		0	
Total Depend	42	↵	0	↵	0	↵
Total Claims	45		0		0	

	*		*		*	
	Indep	Depend	Indep	Depend	Indep	Depend
51		1				
52		1				
53		1				
54		1				
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 17/020,359

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	150		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	330		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	1100		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	45 minus 20 =	* 25	x 50 =	1250	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	*	x 230 =	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	2830		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(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($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
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	

AMENDMENT B

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
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.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
(Use as many sheets as necessary)				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	1	of	10	Attorney Docket Number	10186PAT-1-REI

U.S. PATENT DOCUMENTS					
Examiner Initials*	Cite No.[1]	Document Number Number-kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	3795037	03/05/1974	Luttmer	
	2	3808577	04/30/1974	Mathauser	
	3	3810258	05/07/1974	Mathauser	
	4	4253719	03/03/1981	Mcginley	
	5	4258969	03/31/1981	Stallard	
	6	4421371	12/20/1983	Clark et al.	
	7	4537459	08/27/1985	Brennan et al.	
	8	4700998	10/20/1987	Hvezda et al.	
	9	5135406	08/04/1992	Ishikawa	
	10	5293013	03/08/1994	Takahashi	
	11	5295843	03/22/1994	Davis et al.	
	12	5431578	07/11/1995	Wayne	
	13	5445528	08/29/1995	Frantz	
	14	5496186	03/05/1996	Dobbelaere et al.	
	15	5518416	05/21/1996	Kantner et al.	
	16	5542850	08/06/1996	Frantz	
	17	5591050	01/07/1997	Sueoka	
	18	5595503	01/21/1997	Pittman et al.	
	19	5644470	07/01/1997	Benedict et al.	
	20	5772448	06/30/1998	Ekrot et al.	
	21	5773901	06/30/1998	Kantner	
	22	5800220	09/01/1998	Feeny et al.	
	23	5941729	08/24/1999	Sri-jayantha	
	24	5964610	10/12/1999	Mccoy	
	25	6033247	03/07/2000	Gregory	
	26	6074225	06/13/2000	Wu et al	
	27	6095861	08/01/2000	Lin et al.	
	28	6127941	10/03/2000	Van	
	29	6132223	10/17/2000	Seeley et al.	
	30	6132254	10/17/2000	Wu	
	31	6190190	02/20/2001	Daly et al.	
	32	6257930	07/10/2001	Yu	
	33	6352450	03/05/2002	Bronk et al.	

Examiner Signature		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. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
(Use as many sheets as necessary)				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	2	of	10	Attorney Docket Number	10186PAT-1-REI

	34	6364699	04/02/2002	Hwang et al.	
	35	6394813	05/28/2002	Stout et al.	
	36	6417718	07/09/2002	Ota	
	37	6461192	10/08/2002	Kwoka	
	38	6544075	04/08/2003	Liao	
	39	6565366	05/20/2003	Wu	
	40	6599152	07/29/2003	Oliphant et al.	
	41	6744634	06/01/2004	Yen	
	42	6792487	09/14/2004	Kao	
	43	6796844	09/28/2004	Edwards	
	44	6840806	01/11/2005	Kodama	
	45	6887108	05/03/2005	Wu	
	46	6901457	05/31/2005	Toombs et al.	
	47	6948983	09/27/2005	Peng	
	48	6962510	11/08/2005	Chen et al.	
	49	6981887	01/03/2006	Mese et al.	
	50	6991483	01/31/2006	Milan et al.	
	51	7001192	02/21/2006	Yeh	
	52	7001201	02/21/2006	Peng	
	53	7037120	05/02/2006	Yeh	
	54	7059914	06/13/2006	Tsai	
	55	7090541	08/15/2006	Ho	
	56	7094086	08/22/2006	Teicher	
	57	7150651	12/19/2006	Yuan et al.	
	58	7155545	12/26/2006	Wang	
	59	7160125	01/09/2007	Teicher	
	60	7165998	01/23/2007	Lee et al.	
	61	7198522	04/03/2007	Ho et al.	
	62	7249978	07/31/2007	Ni	
	63	7269004	09/11/2007	Ni et al.	
	64	7300320	11/27/2007	Lee	
	65	7314383	01/01/2008	Ho et al.	
	66	7318752	01/15/2008	Fujimoto et al.	
	67	7329128	02/12/2008	Awad	
	68	7341458	03/11/2008	Koh	
	69	7347747	03/25/2008	Shimizu	

Examiner Signature		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. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
				First Named Inventor	Chou Hsien Tsai
(Use as many sheets as necessary)				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	3	of	10	Attorney Docket Number	10186PAT-1-REI

	70	7352601	04/01/2008	Minneman et al.		
	71	7359208	04/15/2008	Ni		
	72	7361059	04/22/2008	Harkabi et al.		
	73	7363947	04/29/2008	Teicher		
	74	7387539	06/17/2008	Trenne		
	75	7402086	07/22/2008	Pomerantz et al.		
	76	7407390	08/05/2008	Ni		
	77	7416413	08/26/2008	Liao		
	78	7440286	10/21/2008	Hiew et al.		
	79	7440287	10/21/2008	Ni et al.		
	80	7462071	12/09/2008	Wu		
	81	7465181	12/16/2008	Bridges et al.		
	82	7467977	12/23/2008	Yi et al.		
	83	7470160	12/30/2008	Mostoller et al.		
	84	7500861	03/10/2009	Harkabi et al.		
	85	7547218	06/16/2009	Hiew et al.		
	86	7553172	06/30/2009	Chiu et al.		
	87	7572153	08/11/2009	Trenne		
	88	7591657	09/22/2009	Teicher		
	89	7601034	10/13/2009	Aekins et al.		
	90	7604512	10/20/2009	Chen		
	91	7635280	12/22/2009	Crumlin et al.		
	92	7641519	01/05/2010	Chen		
	93	7654871	02/02/2010	Yi et al.		
	94	7670156	03/02/2010	Chen		
	95	7682169	03/23/2010	Park et al.		
	96	7710736	05/04/2010	Middlekauff et al.		
	97	7740499	06/22/2010	Willey et al.		
	98	7918689	04/05/2011	Sloey et al.		
	99	8043099	10/25/2011	Ni et al.		
	100	8073985	12/06/2011	Ni et al.		
	101	8079879	12/20/2011	Chiang		
	102	8167638	05/01/2012	Wojcik et al.		
	103	8198563	06/12/2012	Tsai		
	104	8241047	08/14/2012	Ni et al.		
	105	8257287	09/04/2012	Hanlon et al.		

Examiner Signature		Date Considered	

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	4	of	10	Attorney Docket Number	10186PAT-1-REI

	106	8328434	12/11/2012	Wang et al.	
	107	2003/0100203	05/29/2003	Yen	
	108	2003/0171035	09/11/2003	Yoo	
	109	2004/0023559	02/05/2004	Wu	
	110	2004/0103228	05/27/2004	Kao	
	111	2004/0115990	06/17/2004	Kodama	
	112	2005/0079738	04/14/2005	Ahn	
	113	2005/0186810	08/25/2005	Sardella et al.	
	114	2005/0186850	08/25/2005	Tsai	
	115	2006/0056401	03/16/2006	Bohm et al.	
	116	2006/0094301	05/04/2006	Lee et al.	
	117	2007/0010115	01/11/2007	Teicher	
	118	2007/0049115	03/01/2007	Igarashi et al.	
	119	2007/0058332	03/15/2007	Canterbury et al.	
	120	2007/0197053	08/23/2007	Liao	
	121	2007/0202725	08/30/2007	Teicher	
	122	2007/0202750	08/30/2007	Nishiwaki et al.	
	123	2007/0243726	10/18/2007	Trenne et al.	
	124	2007/0281524	12/06/2007	Pomerantz	
	125	2007/0300023	12/27/2007	Cronin et al.	
	126	2008/0030963	02/07/2008	Middlekauff et al.	
	127	2008/0064271	03/13/2008	Hiew et al.	
	128	2008/0067248	03/20/2008	Hiew et al.	
	129	2008/0119076	05/22/2008	Teicher	
	130	2008/0130207	06/05/2008	Schmidt	
	131	2008/0200072	08/21/2008	Cheong	
	132	2008/0242149	10/02/2008	Konno et al	
	133	2008/0274633	11/06/2008	Teicher	
	134	2008/0299833	12/04/2008	Abe	
	135	2008/0305651	12/11/2008	Mostoller et al.	
	136	2008/0311781	12/18/2008	Wojcik et al.	
	137	2009/0011621	01/08/2009	Trenne	
	138	2009/0156055	06/18/2009	Park et al.	
	139	2009/0258539	10/15/2009	Zheng et al.	
	140	2009/0318026	12/24/2009	Yi et al.	
	141	2010/0075517	03/25/2010	Ni et al.	

Examiner Signature		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. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	5	of	10	Attorney Docket Number	10186PAT-1-REI

	142	2010/0081337	04/01/2010	Dorogusker et al.	
	143	2010/0190382	07/29/2010	Szini et al.	
	144	2010/0221936	09/02/2010	Zhao et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]; Number[4]; Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
	145	CN 2682604	03/02/2005	INVENTECH MULTIMEDIA & TELECOM		(with English abstract)
	146	CN 2909592	06/06/2007	FOXCONN KUNSHAN COMP CONNECTOR		(with English abstract)
	147	CN 101015096	08/08/2007	MSYSTEMS LTD		(with English abstract)
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	158	CN 201312013	09/16/2009	ZHOUXIAN CAI		(with English abstract)

Examiner Signature		Date Considered	

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Substitute for form 1449/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application Number	17/020,359
				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	6	of	10	Attorney Docket Number	10186PAT-1-REI

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				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	7	of	10	Attorney Docket Number	10186PAT-1-REI

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(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	8	of	10	Attorney Docket Number	10186PAT-1-REI

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				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	9	of	10	Attorney Docket Number	10186PAT-1-REI

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				Filing Date	September 14, 2020
(Use as many sheets as necessary)				First Named Inventor	Chou Hsien Tsai
				Art Unit	Not Yet Assigned
				Examiner Name	Not Yet Assigned
Sheet	10	of	10	Attorney Docket Number	10186PAT-1-REI

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Electronic Acknowledgement Receipt

EFS ID:	40558149
Application Number:	17020359
International Application Number:	
Confirmation Number:	8163
Title of Invention:	SOCKET STRUCTURE WITH DUPLEX ELECTRICAL CONNECTION
First Named Inventor/Applicant Name:	Chou Hsien Tsai
Customer Number:	22442
Filer:	Jason Vick/Joseph Samelson
Filer Authorized By:	Jason Vick
Attorney Docket Number:	10186PAT-1-REI
Receipt Date:	15-SEP-2020
Filing Date:	14-SEP-2020
Time Stamp:	11:14:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

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42	Non Patent Literature	099225602_Biblio_Data.pdf	4920123 4ea33fe174e29dee23d77d78e759028ce358e7b7	no	78
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44	Non Patent Literature	10186PAT-1_OARR_10-17-2011.pdf	3959052 d140fbd66c63f209bbe3437c53dff704fba53b19	no	5
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45	Non Patent Literature	10186PAT-1_NOA_03-16-2012.pdf	351633 31846d8960ce9b4a54d51764059b540e06f7726b	no	6
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46		10186PAT-1-REI_IDS_01.pdf	292487 b50f8cf5ade30e04875caff9d42bba3ccaf4679c	yes	13

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Espacenet

CN201663252U Electric connector and terminal structure thereof

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Inventors: ZHOUXIAN CAI

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IPC ***H01R13/02; H01R13/42; H01R13/516; H01R43/16;***

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Electric connector and terminal structure thereof

Abstract

An electric connector comprises a plastic base body that is internally provided with at least one row of terminal slots; and at least one row of terminals that are arranged in at least one row of terminal slots of the plastic base body, wherein each terminal is provided with a springing part, a fixing part and a pin part from one end to the other end; the springing part is provided with a connection point; the fixing part is fixed with the terminal slot; and the pin part extends out of the plastic base body. When an electronic element is inserted, the electronic element can be connected with the connection point and springs the springing part; the one row of terminals are one of two rows of terminals formed by half tearing and stamping of one metal sheet; each terminal in the two rows of terminals is provided with a half tearing punching part for mutual seamless butt; and when the one row of terminals are unfolded as a plane, one terminal is reversed and when the reverse surface is connected between two adjacent terminals, the half tearing punching part of the terminal is seamlessly jointed with the half tearing punching parts of two adjacent terminals.

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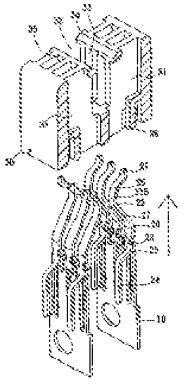
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(54)实用新型名称

电连接器及其端子构造

(57)摘要

一种电连接器，其包括有：一塑胶座体，其内设有至少一排端子槽；至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当一电子元件插入时可与该接点连接并使该弹动部弹动；该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。



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1. 一种电连接器，包括有：

一塑胶座体，其内设有至少一排端子槽；

至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当一电子元件插入时能够与该接点连接并使该弹动部弹动；

其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

2. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的对撕冲切部位为弹动部及固定部，该弹动部和固定部间设有一延伸部，该固定部宽度较该延伸部宽度和该弹动部宽度为宽，该弹动部设有第一、二端，该延伸部设有第一、二端，该固定部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该接延伸部第一端，该延伸部第二端连接该固定部的第一端，该固定部的第二端连接该接脚部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部的形状能够反向且反面接合于两相邻端子的弹动部间隔区域。

3. 如权利要求 2 所述的电连接器，其特征在于：该延伸部亦为对撕冲切部位，该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该延伸部宽度较该弹动部宽度为宽，该一排端子展开成平面时，该延伸部的形状能够反向且反面无缝隙接合于两相邻端子的延伸部间隔区域。

4. 如权利要求 3 所述的电连接器，其特征在于：该延伸部设成相同长度的延伸部第一段和延伸部第二段，延伸部第二段宽度较延伸部第一段宽度为宽，该两相邻端子的延伸部第一段的间距等于该延伸部第二段宽度，延伸部第一段宽度 + 延伸部第二段宽度 = 弹动部宽度 + 固定部宽度。

5. 如权利要求 2 所述的电连接器，其特征在于：该固定部设成不同宽度的固定部第一段和固定部第二段，固定部第二段宽度较固定部第一段宽度为宽，该弹动部设成不同宽度的弹动部第一段和弹动部第二段，弹动部第二段宽度较弹动部第一段宽度为宽，该弹动部第二段长度和固定部第一段长度相同，该两相邻端子的弹动部第一段间距等于该固定部第二段宽度，该两相邻端子的弹动部第二段间距等于该固定部第一段宽度，弹动部第一段宽度 + 固定部第二段宽度 = 弹动部第二段宽度 + 固定部第一段宽度。

6. 如权利要求 1 所述的电连接器，其特征在于：该塑胶座体设有一连接槽，该端子槽在该连接槽的插入口设有一抵靠面，该端子的弹动部弹性抵靠于该抵靠面。

7. 如权利要求 2 所述的电连接器，其特征在于：该固定部设有宽度更为凸出的倒刺，该弹动部设有宽度更小的凹部，该倒刺能够无缝隙接合该凹部。

8. 如权利要求 2 所述的电连接器，其特征在于：该一排端子展开成平面时，该其中一端子的固定部的形状反向且反面接合于两相邻端子的弹动部间隔区域时无缝隙靠合该两相邻端子的弹动部。

9. 如权利要求 3 所述的电连接器，其特征在于：该每一端子的延伸部由第一端至第二

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端呈凸凹间隔形状。

10. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子槽为二排呈一间距并相面对，该两排端子槽之间形成一连接槽，该塑胶座体呈纵长条形状，该连接槽亦呈纵长条形状，该两排端子槽呈上下方向延伸，该端子的弹动部可侧向弹动。

11. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子槽为二排呈一间距并相面对，该两排端子槽之间形成一连接槽，该两排端子槽呈前后方向延伸，该端子的弹动部可上下弹动。

12. 如权利要求 11 所述的电连接器，其特征在于：还设有一金属外壳包覆该塑胶座体。

13. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子槽为一排，该端子槽呈前后方向延伸，且还设有一金属上盖盖合于该塑胶座体上方。

14. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的对撕冲切部位为弹动部，该固定部宽度较该弹动部宽度为宽，该弹动部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该于固定部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该弹动部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的弹动部的形状能够反向且反面接合于两相邻端子的弹动部间隔区域。

15. 如权利要求 14 所述的电连接器，其特征在于：该一排端子展开成平面时，其中一端子的弹动部的形状能够反向且反面无缝隙接合于两相邻端子的弹动部间隔区域。

16. 如权利要求 1 所述的电连接器，其特征在于：该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位的切断面与二相邻端子的对撕冲切部位的切断面无缝接合。

17. 如权利要求 1 所述的电连接器，其特征在于：该塑胶座体间隔排列设有多排端子槽，该端子槽设有与前、后排端子槽相隔的第一壁及第二壁；该至少一排端子的对撕冲切部位为接脚部及固定部，该同一排相邻端子的接脚部间距等于该固定部的宽度，且其中一端子的固定部的形状能够反向且反面接合于二相邻端子的接脚部间隔区域。

18. 如权利要求 17 所述的电连接器，其特征在于：该一排端子的其中一端子的固定部的形状能够反向且反面无缝隙接合于二相邻端子的接脚部间隔区域。

19. 如权利要求 17 所述的电连接器，其特征在于：该端子的弹动部接近末端设有该接点，该接点为端子的最高点，当该接点受力时弹动部能够上下弹动，该端子的弹动部延伸逾过该第一壁至前排的端子槽上方。

20. 如权利要求 17 所述的电连接器，其特征在于：该端子的弹动部是连接于该固定部上端中间，该固定部上端的两侧各设有一连接凸部。

21. 如权利要求 17 所述的电连接器，其特征在于：该端子的固定部上端一侧设有一连接凸部，该弹动部是连接于该连接凸部一侧且转折一夹角。

22. 如权利要求 1 所述的电连接器，其特征在于：该金属片对撕冲压所形成的二排端子为相同构造。

23. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的对撕冲切部位为固定部，该固定部设有第一、二端，第一端连接弹动部，第二端连接接脚部，一排端子中二相邻端子的固定部由第一端至第二端依序的间距等于其中一端子的固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，

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该一端子的固定部与二相邻端子的固定部无缝接合。

24. 如权利要求 23 所述的电连接器，其特征在于：该塑胶座体还设有至少一排连接槽，每一端子槽与一连接槽相通，其一端设有一凸部，该凸部设有至少一排插孔对应该至少一排连接槽，另外还设有一金属套壳套合于塑胶座体一端，其包覆该凸部的周边且让凸部的插孔露出。

25. 如权利要求 23 所述的电连接器，其特征在于：该固定部由第一端至第二端等宽，该固定部弯折成二垂直板面，纵向板面向下延伸并连接该接脚部。

26. 如权利要求 24 所述的电连接器，其特征在于：该至少一排端子的弹动部、固定部与接脚部皆呈纵向延伸，该塑胶座体的凸部朝上。

27. 一排端子构造，其为一金属片对撕冲压所形成二排端子的其中一排端子，包括有：

一料带；及

多个端子，呈间隔排列连接于该料带，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动；

其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

28. 如权利要求 27 所述的一排端子构造，其特征在于：该每一端子的对撕冲切部位为弹动部及固定部，该弹动部和固定部间设有一延伸部，该固定部宽度较该延伸部宽度和该弹动部宽度为宽，该弹动部设有第一、二端，该延伸部设有第一、二端，该固定部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该接延伸部第一端，该延伸部第二端连接该固定部的第一端，该固定部的第二端连接该接脚部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部的形状能够反向且反面接合于两相邻端子的弹动部间隔区域。

29. 如权利要求 28 所述的一排端子构造，其特征在于：该延伸部亦为对撕冲切部位，该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该延伸部宽度较该弹动部宽度为宽，该一排端子展开成平面时，该延伸部的形状能够反向且反面无缝隙接合于两相邻端子的延伸部间隔区域。

30. 如权利要求 28 所述的一排端子构造，其特征在于：该固定部设成不同宽度的固定部第一段和固定部第二段，固定部第二段宽度较固定部第一段宽度为宽，该弹动部设成不同宽度的弹动部第一段和弹动部第二段，弹动部第二段宽度较弹动部第一段宽度为宽，该两相邻端子的弹动部第一段间距等于该固定部第二段宽度，该两相邻端子的弹动部第二段间距等于该固定部第一段宽度，弹动部第一段宽度＋固定部第二段宽度＝弹动部第二段宽度＋固定部第一段宽度。

31. 如权利要求 28 所述的一排端子构造，其特征在于：该一排端子展开成平面时，该其中一端子的固定部的形状反向且反面接合于两相邻端子的弹动部间隔区域时无缝隙靠合该两相邻端子的弹动部。

32. 如权利要求 27 所述的一排端子构造，其特征在于：该至少一排端子的对撕冲切部

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位为弹动部，该固定部宽度较该弹动部宽度为宽，该弹动部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该于固定部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该弹动部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的弹动部的形状可反向且反面接合于两相邻端子的弹动部间隔区域。

33. 如权利要求 32 所述的一排端子构造，其特征在于：该一排端子展开成平面时，其中一端子的弹动部的形状能够反向且反面无缝隙接合于两相邻端子的弹动部间隔区域。

34. 如权利要求 27 所述的一排端子构造，其特征在于：该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位的切断面与二相邻端子的对撕冲切部位的切断面无缝接合。

35. 如权利要求 27 所述的一排端子构造，其特征在于：该一排端子的对撕冲切部位为接脚部及固定部，相邻端子的接脚部间距等于该固定部的宽度，且其中一端子的固定部的形状能够反向且反面接合于二相邻端子的接脚部间隔区域。

36. 如权利要求 35 所述的一排端子构造，其特征在于：一端子的固定部的形状能够反向且反面无缝隙接合于二相邻端子的接脚部间隔区域。

37. 如权利要求 27 所述的一排端子构造，其特征在于：该金属片对撕冲压所形成的二排端子是为相同构造。

38. 如权利要求 27 所述的一排端子构造，其特征在于：该一排端子的对撕冲切部位为固定部，该固定部设有第一、二端，第一端连接弹动部，第二端连接接脚部，该一排端子中二相邻端子的固定部由第一端至第二端依序的间距等于其中一端子的固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的固定部与二相邻端子的固定部无缝接合。

39. 如权利要求 27 所述的一排端子构造，其特征在于：该接脚部的两侧各无缝接合一连接片，该二连接片一端连接料带且另一端连接于固定部一端，该一排端子的对撕冲切部位为为弹动部、固定部和接脚部两侧的连接片，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的弹动部及固定部和二相邻端子的接脚部两侧的连接片无缝接合。

40. 二排端子构造，其为一金属片对撕冲压面形成，其特征在于：包括有：

一第一排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

一第二排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

该第一、二排端子是呈反向对接，该第一、二排端子展开成平面时，该第一排端子的各端子的对撕冲切部位无缝接合于该第二排端子的两相邻端子的对撕冲切部位的间隔区域。

41. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为弹动部及固定部，该弹动部和固定部间设有一延伸部，该固定部宽度较该延伸部宽度和该弹动部宽度为宽，该弹动部设有第一、二端，该延伸部设有第一、二端，该固定部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该接延伸部第一端，该延

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伸部第二端连接该固定部的第一端，该固定部的第二端连接该接脚部；该第一排端子的固定部的形状接合于第二排端子的两相邻端子的弹动部间隔区域。

42. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为弹动部，该固定部宽度较该弹动部宽度为宽，该弹动部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该于固定部，该两相邻端子的弹动部由第一端至第二端依序的间距等于该弹动部由第二端至第一端依序的宽度；该第一排端子的各端子的弹动部接合于该第二排端子的两相邻端子的弹动部的间隔区域。

43. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为固定部及接脚部，该两相邻端子的接脚部间距等于该固定部的宽度；该第一排端子的各端子的固定部接合于该第二排端子的两相邻端子的接脚部的间隔区域，该第一排端子的各端子的接脚部接合于该第二排端子的两相邻端子的固定部的间隔区域。

44. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为固定部，该固定部设有第一、二端，第一端连接弹动部，第二端连接接脚部，该第一、二排端子中二相邻端子的固定部由第一端至第二端依序的间距等于其中一端子的固定部由第二端至第一端依序的宽度；该第一排端子的各端子的固定部接合于该第二排端子的两相邻端子的固定部的间隔区域。

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电连接器及其端子构造

【技术领域】

[0001] 本实用新型是有关于一种电连接器，特别是关于一种端子在冲压制造非常节省材料的电连接器。

[0002] 【背景技术】

[0003] 电连接器的端子在制造上是以金属片冲压，冲压完成的端子是依电连接器的端子间距而间隔排列连接于一料带上，如此整排的端子可一次组装在电连接器的塑胶座体上。

[0004] 上述整排连续排列端子在冲压制造上，两相邻端子的间隔区域则是金属片打掉材料而形成，故此部份则成废料，因此，若要节省端子冲压上的成本则需减少废料形成。

[0005] 【实用新型内容】

[0006] 本实用新型的主要目的在于提供一种电连接器及其端子构造，其端子冲压制造上，是采二排端子对撕冲压，达到省料效果。

[0007] 本实用新型的另一主要目的在于提供一种电连接器，其端子冲压制造上，是采二排端子对撕冲压，达到省料效果。

[0008] 为达上述目的，本实用新型电连接器包括有：一塑胶座体，其内设有至少一排端子槽；至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当 一电子元件插入时可与该接点连接并使该弹动部弹动；其特征在于该至少一排端子是为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

[0009] 本实用新型还提供一种一排端子构造，其为一金属片对撕冲压所形成二排端子的其中一排端子，包括有：

[0010] 一料带；及

[0011] 多个端子，呈间隔排列连接于该料带，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动；

[0012] 其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

[0013] 本实用新型还提供一种二排端子构造，其为一金属片对撕冲压而形成，其特征在于：包括有：

[0014] 一第一排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

[0015] 一第二排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由

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一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

[0016] 该第一、二排端子是呈反向对接，该第一、二排端子展开成平面时，该第一排端子的各端子的对撕冲切部位无缝接合于该第二排端子的两相邻端子的对撕冲切部位的间隔区域。

[0017] 借由以上构造，在端子冲压制造上，二排端子可对撕冲压，达到省料效果。

[0018] 本实用新型的上述及其他目的、优点和特色由以下较佳实施例的详细说明中并参考图式当可更加明白，其中：

【附图说明】

[0019] 图 1 是本实用新型第一实施例的立体分解图。

[0020] 图 2 是本实用新型第一实施例的一排端子展开平面图。

[0021] 图 3 是本实用新型第一实施例的立体组合图。

[0022] 图 4 是本实用新型第一实施例的组合剖面图。

[0023] 图 5 是本实用新型第一实施例的端子冲压制造流程示意图。

[0024] 图 6 是本实用新型第一实施例的端子冲压制造示意图。

[0025] 图 7 是本实用新型第一实施例的二排端子的延伸部的切断面示意图。

[0026] 图 8 是本实用新型第一实施例的第一排端子的其中一端子成反面反向接合于两端子之间的切断面接合状态示意图。

[0027] 图 9 是本实用新型第一实施例的第一排端子的其中一端子成正面反向接合于两端子之间的切断面接合状态示意图。

[0028] 图 10 是本实用新型第二实施例的立体组合图。

[0029] 图 11 是本实用新型第三实施例的端子立体图。

[0030] 图 12 是本实用新型第三实施例的端子展开平面图。

[0031] 图 13 是本实用新型第三实施例的端子冲压制造流程示意图。

[0032] 图 14 是本实用新型第四实施例的端子展开平面图。

[0033] 图 15 是本实用新型第五实施例的剖面侧视图。

[0034] 图 16 是本实用新型第五实施例的剖面立体图。

[0035] 图 17 是本实用新型第五实施例的端子冲压制造流程示意图。

[0036] 图 18 是本实用新型第六实施例的正面立体图。

[0037] 图 19 是本实用新型第六实施例的一排端子立体图。

[0038] 图 20 是本实用新型第六实施例的反面立体图。

[0039] 图 21 是本实用新型第七实施例的立体分解图。

[0040] 图 22 是本实用新型第七实施例的一排端子展开平面图。

[0041] 图 23 是本实用新型第七实施例的立体组合图。

[0042] 图 24 是本实用新型第七实施例的组合剖面图。

[0043] 图 25 是本实用新型第七实施例的端子冲压制造流程示意图。

[0044] 图 26 是本实用新型第八实施例的端子展开平面图。

[0045] 图 27 是本实用新型第九实施例的剖面侧视图。

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[0046] 图 28 是本实用新型第九实施例的剖面立体图。

[0047] 图 29 是本实用新型第九实施例的端子冲压制造流程示意图。

[0048] 图 30 是本实用新型第十实施例的正面立体图。

[0049] 图 31 是本实用新型第十实施例的一排端子立体图。

[0050] 图 32 是本实用新型第十实施例的反面立体图。

[0051] 图 33 是本实用新型第十一实施例的立体分解图。

[0052] 图 34 是本实用新型第十一实施例的端子与塑胶座体立体分解图。

[0053] 图 35 是本实用新型第十一实施例的剖面图。

[0054] 图 36 是本实用新型第十一实施例的使用状态立体图。

[0055] 图 37 是本实用新型第十一实施例的二排端子对接立体图。

[0056] 图 38 是本实用新型第十一实施例的二排端子对接的展开平面图。

[0057] 图 39 是本实用新型第十二实施例的二排端子立体分解图。

[0058] 图 40 是本实用新型第十二实施例的二排端子对接立体图。

[0059] 图 41 是本实用新型第十三实施例的二排端子立体分解图。

[0060] 图 42 是本实用新型第十三实施例的二排端子对接立体图。

[0061] 图 43 是本实用新型第十四实施例的剖面侧视图。

[0062] 图 44 是本实用新型第十四实施例的塑胶座体的后视图。

[0063] 图 45 是本实用新型第十四实施例的使用状态图。

[0064] 图 46 是本实用新型第十四实施例的端子冲压制造流程示意图。

[0065] 图 47 是本实用新型第十五实施例的端子冲压制造流程示意图。

[0066] 图 48 是本实用新型第十六实施例的端子冲压制造流程示意图。

[0067] 图 49 是本实用新型第十七实施例的立体分解图。

[0068] 图 50 是本实用新型第十七实施例的剖面侧视图。

[0069] 图 51 是本实用新型第十七实施例的端子冲压制造流程示意图。

[0070] 图 52 是本实用新型第十八实施例的端子冲压制造流程示意图。

[0071] 料带 10 端子 20 弹动部 21 延伸部 22 固定部 23 接脚部 24 切痕 25 延伸部第一段 26 延伸部第二段 27 固定部第一段 28 固定部第二段 29

[0072] 倒刺 210 弹动部第一段 211 弹动部第二段 212 凹部 213 接点 215 连接凸部 217 倒刺 218 凹部 219

[0073] 辅助力臂 220 第一端 221 第二端 222 连接片 225 间隙 226

[0074] 塑胶座体 30 端子槽 31 连接槽 32 开口 33 导入斜面 34 抵靠面 35 卡槽 36 后盖 38 抵缘 39 凸部 310 插孔 312 金属外壳 40 金属上盖 45 顶面 46 第一侧面 47 第一侧面 48

[0075] 塑胶内座 50 凸缘 51 放置区 52 端子槽 53

[0076] 第一壁 54 第二壁 55 锡球槽 56 锡球 57

[0077] 通道 58 金属上盖 60 顶面 61 侧面 62

[0078] 透空区 63 凸片 64 枢接部 65

[0079] 公接头 68 端子 69

[0080] 摇杆 70 第一杆 71 第二杆 72 凸杆 73

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[0081] 手把 74 上模 81 下模 82 冲孔 83 光滑面 86 毛边 87 金属外座 90 底面 91 侧面 92

[0082] 透空区 93 第一枢接部 94 第二枢接部 95。

[0083] 第一排端子 1 第二排端子 2

【具体实施方式】

[0084] 请参阅图 1、图 2、图 3 及图 4，本实施例包括有：一塑胶座体 30 及二排端子 20，其中：

[0085] 该塑胶座体 30 呈纵长条形状，其设有二排间隔排列的端子槽 31，该两排端子槽 31 之间形成一纵长条形状的连接槽 32，该端子槽 31 设有一开口 33 与该连接槽 32 相通，该连接槽 32 的开口朝上且上端设有导入斜面 34，该端子槽 31 在开口 33 上端设有一抵靠面 35 且下段设有一卡槽 36。

[0086] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，每一排端子 20 是连接一料带 10，其为一金属片对撕冲压所形成相同二排端子的其中一排端子，该一排端子 20 组装于一排端子槽 31 后再将该料带 10 折断分离，该端子 20 由一端至另一端设有一弹动部 21、一延伸部 22、一固定部 23 及一接脚部 24；该弹动部 21 设有第一、二端，该延伸部 22 设有第一、二端，该固定部 23 设有第一、二端，该弹动部 21 的第一端为端子的尾端，该弹动部的第二端连该接延伸部 22 第一端，该延伸部 22 第二端连接该固定部 23 的第一端，该固定部 23 的第二端连接该接脚 24 及该料带 10 且该处设有易于折断的切痕 25，该固定部 23 宽度较该延伸部 22 宽度为宽借以与端子槽 31 的卡槽 36 卡定，该固定部 23 由第一端至第二端设成不同宽度的固定部第一段 28 和固定部第二段 29，固定部第二段宽度 A 较固定部第一段宽度 B 为宽且两者间设有宽度更为凸出的倒刺 210；该延伸部 22 宽度较该弹动部 21 宽度为宽，该延伸部 22 为一弯折的弹臂且由第一端至第二端设成等长的延伸部第一段 26 及延伸部第二段 27，延伸部第二段宽度 C 较延伸部第一段宽度 D 为宽，该延伸部第一段 26 设有一凸出的接点 215，该接点 215 由开口 33 伸出至该连接槽 32；该弹动部 21 尾端弹性抵靠该抵靠面 35，该弹动部 21 由第一端至第二端设成不同宽度的弹动部第一段 211 和弹动部第二段 212，弹动部第二段宽度 E 较弹动部第一段宽度 F 为宽且两者间设有宽度更小的凹部 213，该接脚部 24 伸出该塑胶座体 30 下端。

[0087] 本实施例的特点在于该每一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为弹动部 21、延伸部 22 及固定部 23。

[0088] 该两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，该其中一端子的固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，该延伸部 22 的形状可反向且反面无缝隙接合于两相邻端子的延伸部 22 间隔区域，亦即两相邻端子的延伸部 22 间隔区域等于该延伸部 22 的面积。

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[0089] 该两相邻端子的弹动部第一段的间距 X 等于该固定部第二段宽度 A，该 两相邻端子的弹动部第二段的间距 Y 等于该固定部第一段宽度 B，该两相邻端子的延伸部第一段的间距 Z 等于该延伸部第二段宽度 C，该延伸部第一段 26 的长度和该延伸部第二段 27 的长度相同，该弹动部第二段 212 的长度和固定部第一段 28 的长度相同，弹动部第一段宽度 F+固定部第二段宽度 A ＝延伸部第一段宽度 D+ 延伸部第二段宽度 C ＝弹动部第二段宽度 E+固定部第一段宽度 B ；该一排端子展开成平面时，该固定部 23 的形状可无缝隙接合于两相邻端子的弹动部 21 间隔区域，即该固定部第一段 28 无缝隙靠合该两相邻端子的弹动部第二段 212，该固定部第二段 29 无缝隙靠合该两相邻端子的弹动部第一段 211，该倒刺 210 可无缝隙接合该两相邻端子的凹部 213，另外，该两相邻端子的延伸部 22 间隔区域等于该延伸部 22 的面积。

[0090] 借由以上构造，端子在冲压制造上如图 5 所示，二排间隔排列相连接的端子可由一片金属片完全对接排列冲压，即第一排端子 1 的各端子 20 的固定部 23 恰可对接于第二排端子 2 的两相邻端子 20 的弹动部 21 之间，第一排端子 1 的各端子 20 的延伸部第二段 27 恰可对接于第二排端子 2 的两相邻端子 20 的延伸部第一段 26 之间，如此一金属片先完全无缝隙对撕成二排端子，再拉开后弯折弹动部 21、延伸部 22 及接脚部 24。

[0091] 上述端子在制造上，二排端子对接冲压时除了相连的料带 10 外完全无废料形成，明显可节省材料，降低制造成本。

[0092] 请参阅图 6 及图 7，本实用新型以一金属片对撕冲压成二排相同端子时，由于模具的上模 81 的宽度 s 必然较下模 82 的冲孔 83 的宽度 b 为小，由于第一排端子 1 的端子的弹动部 21 与第二排端子 2 的端子的固定部 23 无缝对撕，故冲压后第一排端子 1 的端子的弹动部 21 的切断面的上段形成光滑面 86 而下段形成毛边 87，然而第二排端子 2 的端子的固定部 23 的切断面则是下段形成光滑面 86 而上段形成毛边 87，光滑面 86 的宽度 b 较毛边 87 的宽度 s 稍大，第二排端子 2 的端子的固定部 23 接合于第一排端子 2 的端子的弹动部 21 的间隔区域时，两者接合处的切断面相互为毛边 87 接合光滑面 86，故可成密合连接。

[0093] 如此冲压后第一排端子 1 的端子的弹动部 21 上段宽度与第二排端子 2 的端子的固定部 23 下段宽度均为 b，而第一排端子 1 的端子的弹动部 21 下段宽度与第二排端子 2 的端子的弹动部上段宽度均为 s，当第一排端子 1 的 端子 20 成反面时固定部的切断面即与第二排端子 2 的端子 20 的固定部的切断面相同。

[0094] 请参阅图 8，第一排端子 1 其中一端子成反面反向接合于两端子之间时其固定部 23’ 的切断面与该两相邻端子的弹动部 21 的切断面是相互为毛边 87 接合光滑面 86，故可成密合连接。

[0095] 请参阅图 9，第一排端子 1 其中一端子成同面反向接合于两端子之间时其固定部的切断面与该两相邻端子 20 的弹动部的切断面是相互为光滑面 86 接合光滑面 86，故无法密合连接。

[0096] 请参阅图 10，为本实用新型第二实施例，其大致与第一实施例相同，其差异在于该端子 20 的延伸部第一段 26 的板面刺破冲压出一凸出的接点 215。

[0097] 请参阅图 11 及图 12，为本实用新型第三实施例，其大致与第一实施例相同，其差异在于该端子 20 的延伸部 22 只有一个延伸部宽度 H，该两相邻端子的延伸部的间距 W 等于该延伸部宽度 H，该弹动部第二段 212 的长度和固定部第一段 28 的长度相同，弹动部第一段

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宽度 F+ 固定部第二段宽度 A ＝ 2 倍延伸部宽度 H ＝弹动部第二段宽度 E+ 固定部第一段宽度 B。

[0098] 本实施例端子在冲压制造上如图 13 所示，二排间隔排列相连接的端子可由一片金属片完全对接排列冲压，即第一排端子 1 的各端子 20 的固定部第二段 29 恰可对接于第二排端子 2 的两相邻端子 20 的弹动部第一段 211 之间，第一排端子 1 的各端子 20 的固定部第一段 28 恰可对接于第二排端子 2 的两相邻端子 20 的弹动部第二段 212 之间，第一排端子 1 的各端子 20 的延伸部 22 恰可对接于第二排端子 2 的两相邻端子 20 的延伸部 22 之间，如此一金属片先完全无缝隙对撕成二排端子，再拉开后弯折弹动部 21、延伸部 22 及接脚部 24。

[0099] 请参阅图 14，为本实用新型第四实施例，其大致与第一实施例相同，其差异在于该端子 20 的固定部 23 皆等宽只有一个宽度，而该弹动部 21 亦等宽只有一个宽度，而该延伸部 22 宽度由上而下渐宽，该两相邻端子的弹动部的间距 P 等于该固定部宽度 Q，该端子 20 展开成平面时，该两相邻端子的延伸部 22 间隔区域等于该延伸部 22 的面积；借由以上构造，二排间隔排列相连接的端子可由一片金属片完全对接排列冲压。

[0100] 请参阅图 15 及图 16，为本实用新型第五实施例，其是为一讯号线的 接头，其包括有：一塑胶座体 30、二排端子 20、及一金属外壳 40，其中：

[0101] 该塑胶座体 30 设有二排间隔排列的端子槽 31，该两排端子槽 31 呈一上一下排列并相面对，两排端子槽 31 之间形成一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通，该连接槽 32 的前端为插入口且设有导入斜面 34，该端子槽 31 后端设有一卡槽 36 且前端设有一抵靠面 35。

[0102] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、一延伸部 22、一固定部 23 及一接脚部 24，本实施例的端子 20 的构造大致与第一实施例相同，该延伸部 22 设有第一、二端，该延伸部 22 设有第一、二端，该固定部 23 设有第一、二端，该弹动部 21 的第一端为端子的尾端，该弹动部 21 的第二端连该接延伸部 22 第一端，该延伸部 22 第二端连接该固定部 23 的第一端，该固定部 23 的第二端连接该接脚 24 及该料带 10 且该处设有易于折断的切痕 25，该固定部 23 宽度较该延伸部 22 宽度为宽借以与端子槽 31 的卡槽 36 卡定，该弹动部 21 弹性抵靠该塑胶座体的抵靠面 35，本实施例与第一实施例的差异在于本实施例的端子 20 是呈横向延伸，该延伸部 22 由第一端至第二端呈同一宽度，该延伸部 22 横向延伸呈一弯折的弹臂且可上下弹动，其接近末端设有一凸出的接点 215，该接点 215 伸出端子槽 31 至该连接槽 32。

[0103] 该金属外壳 40 包覆于该塑胶座体 30 外。

[0104] 请参阅图 17，是本实施例的冲压制造流程示意图，本实施例的端子 20 的构造大致与第一实施例相同，同样是该两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，且该端子的延伸部 22 的形状可反向且反面无缝隙接合于两相邻端子的延伸部 22 间隔区域。

[0105] 借由以上构造，端子在冲压制造上，二排间隔排列相连接的端子可由一片金属片

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对接排列冲压，由于第一排端子 1 的各端子 20 的延伸部 22 及固定部 23 分别无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 及弹动部 21 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折延伸部 22。

[0106] 请参阅图 18、图 19 及图 20，是为本实用新型第六实施例，其是为一 Express card 连接器，其包括有：一塑胶座体 30、一排端子 20、及一金属上盖 45，其中：

[0107] 该塑胶座体 30 设有一排间隔排列的端子槽 31 及一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通，该端子槽 31 前端亦有抵靠面 35 且后端设有卡槽。

[0108] 该一排端子 20 设于该塑胶座体 30 的一排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、延伸部 22、一固定部 23 及一接脚部 24，该端子 20 构造大致与第五实施例相同，延伸部 22 亦为上下弹动型态，其差异在于本实施例的接脚部 24 是往下弯折后再形成一水平接脚。

[0109] 该金属上盖 45 盖合于该塑胶座体 30 上方，其设有一顶面 46 及相对的第一、二侧面 47、48。

[0110] 本实施例的端子 20 的构造大致与第五实施例相同，同样是两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，且该端子的延伸部 22 的形状可反向且反面无缝隙接合于两相邻端子的延伸部 22 间隔区域；借此，达到端子在冲压制造上节省材料。

[0111] 请参阅图 21、图 22、图 23 及图 24，是为本实用新型第七实施例，本实施例为一种记忆卡模组连接器，其包括有：一塑胶座体 30 及二排端子 20，其中：

[0112] 该塑胶座体 30 呈纵长条形状，其设有二排间隔排列的端子槽 31，该两排端子槽 31 呈一间距并相面对且之间形成一纵长条形状的连接槽 32，该端子槽 31 呈上下方向延伸且设有一开口 33 与该连接槽 32 相通，该连接槽 32 的开口朝上且上端设有导入斜面 34，该端子槽 31 下段设有一卡槽 36。

[0113] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，每一排端子 20 是连接一料带 10，该一排端子 20 组装于一排端子槽 31 后再将该料带 10 折断分离，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23 及一接脚部 24；该固定部 23 下端连接该料带 10 且该处设有易于折断的切痕 25，该固定部 23 的宽度较该弹动部 21 的宽度和接脚部 24 的宽度为宽，该固定部 23 设有宽度更为凸出的倒刺 210 借以与端子槽 31 的卡槽 36 卡定；该弹动部 21 为单一宽度，其设有第一、二端 221、222，第二端 222 与固定部连接，第一端 221 为开放端，该弹动部 21 上下延伸呈一弯折的弹臂且可侧向弹动，其接近末端设有一凸出的接点 215，该接点 215 由开口 33 伸出端子槽 31 至该连接槽 32，该接脚部 24 伸出该塑胶座体 30 下端。

[0114] 本实施例的特点在于该每一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为弹动部 21。

[0115] 该同一排两相邻端子的弹动部 21 的间距 A 等于该弹动部 21 的宽度 B，即该一排端

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子展开成平面时，其中一端子的弹动部 21 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域。

[0116] 借由以上构造，端子在冲压制造上如图 25 所示，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的弹动部 21 无缝隙对接于第二排端子 2 的两相邻端子 20 的弹动部 21 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折弹动部 21 及接脚部 24。

[0117] 上述端子在制造上，二排端子对接冲压时由于二排端子的延伸部是为无缝接合，而该弹动部 21 的长度占整体端子很大比率，故在制造上明显可节省材料，降低制造成本。

[0118] 二排端子的固定部 23 虽没有相互对接，由于固定部 23 宽度甚宽，所以打掉的废料亦很少了，如图 2 的斜线部份即为两相邻端子的固定部间隔所打掉的废料。

[0119] 请参阅图 26，是为本实用新型第八实施例，其大致与第七实施例相同，其差异在于本实施例的端子 20 的弹动部 21 由第一端 221 至第二端 222 渐宽，该同一排两相邻端子 20 的弹动部 21 由第一端 221 至第二端 222 依序的间距 C 等于该弹动部 21 由第二端 222 至第一端 221 依序的宽度 D，即该一排端子展开成平面时，其中一端子的弹动部 21 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域。

[0120] 请参阅图 27 及图 28，是为本实用新型第九实施例，其是为一讯号线的接头，其包括有：一塑胶座体 30、二排端子 20、及一金属外壳 40，其中：

[0121] 该塑胶座体 30 设有二排间隔排列的端子槽 31，该两排端子槽 31 呈一上一下排列并相面对，两排端子槽 31 之间形成一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通，该连接槽 32 的前端为插入口且设有导入斜面 34，该端子槽 31 后端设有一卡槽 36。

[0122] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23 及一接脚部 24，该固定部 23 的宽度较该弹动部 21 的宽度和接脚部 24 的宽度为宽借以与端子槽 31 的卡槽 36 卡定，该弹动部 21 横向延伸呈一弯折的弹臂且可上下弹动，其接近末端设有一凸出的接点 215，该接点 215 伸出端子槽 31 至该连接槽 32，该接脚部 24 伸出该塑胶座体 30 外。

[0123] 该金属外壳 40 包覆于该塑胶座体 30 外。

[0124] 请参阅图 29，是本实施例的冲压制造流程示意图，本实施例的端子 20 的构造大致与第七实施例相同，同样是同一排两相邻端子的弹动部 21 的间距 A 等于该弹动部 21 的宽度 B，即该一排端子展开成平面时，该弹动部 21 的形状可反向无缝隙接合于两相邻端子的弹动部 21 间隔区域，借由以上构造，端子在冲压制造上，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的弹动部 21 无缝隙对接于第二排端子 2 的两相邻端子 20 的弹动部 21 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折弹动部 21。

[0125] 请参阅图 30、图 31 及图 32，是为本实用新型第十实施例，其是为一 Express card 连接器，其包括有：一塑胶座体 30、一排端子 20、及一金属上盖 45，其中：

[0126] 该塑胶座体 30 设有一排间隔排列的端子槽 31 及一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通。

[0127] 该一排端子 20 设于该塑胶座体 30 的一排端子槽 31，该端子 20 由一端至另一端设

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有一弹动部 21、一固定部 23 及一接脚部 24，该固定部 23 的宽度较该弹动部 21 的宽度和接脚部 24 的宽度为宽借以与端子槽 31 的卡槽卡定，该弹动部 21 横向延伸呈一弯折的弹臂且可上下弹动，其接近末端设有一凸出的接点 215，该接点 215 伸出端子槽 31 至该连接槽 32，该接脚部 24 伸出该塑胶座体 30 下端。

[0128] 该金属上盖 45 盖合于该塑胶座体 30 上方，其设有一顶面 46 及相对的第一、二侧面 47、48。

[0129] 本实施例的端子 20 的构造大致与第九实施例相同，同样是同一排两相邻端子的弹动部 21 的间距 A 等于该弹动部 21 的宽度 B，即该一排端子展开成平面时，其中一端子的弹动部 21 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，借此，达到端子在冲压制造上节省材料。

[0130] 请参阅图 33、图 34、图 35 及图 36，是为本实用新型第十一实施例，其是为一晶片连接器，其包括有：一金属外座 90、一塑胶内座 50、一金属上盖 60、一摇杆 70、及多排端子 20，其中：

[0131] 该金属外座 90 设有一底面 91 及向上的两侧面 92，该底面 91 的中央形成一透空区 93，其前端两侧各设有一第一枢接部 94，而后端两侧各设有一第二枢接部 95。

[0132] 该塑胶内座 50 设于该金属外座 90 上，其上周缘设有向上的凸缘 51 而围成一放置一晶片的放置区 52，该放置区 52 间隔排列设有多排端子槽 53，该多排端子槽 53 对应该透空区 93，端子槽 53 设有与前、后排端子槽相隔的第一壁 54 及第二壁 55，端子槽 53 下方对应设有一锡球槽 56、该锡球槽 56 设有一锡球 57，该端子槽 53 与锡球槽 56 设有通道 58 相通。

[0133] 该金属上盖 60 是设有一顶面 61 及向下的两侧面 62，该顶面 61 中间设有一透空区 63，其前端设有一凸片 64，其后端两侧各设有一呈弯弧状的枢接部 65。

[0134] 该摇杆 70 设有相互呈垂直的第一杆 71 及第二杆 72，该第二杆 72 枢接于金属外座 90 前端的第一枢接部 94 且中段弯曲形成一凸杆 73，该第一杆 71 外端弯曲形成一手把 74，当第一杆 71 往后摇动时，该凸杆 73 可压制该金属上盖 60 的凸片 64 而使该金属上盖 60 压住该晶片 37。

[0135] 该多排端子 20 设于该塑胶座体 50 的多排端子槽 53，每一排端子 20 是连接一料带 10，该一排端子 20 组装于一排端子槽 53 后再将该料带 10 分离，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23、及一接脚部 24，该固定部 23 较该弹动部 21 及接脚部 24 为宽借以定位于端子槽的第一壁 54，该固定部 23 下端连接该接脚部 24，固定部 23 上端中间连接该弹动部 21 且上端两侧各设有一连接凸部 217 与该料带 10 相连，该连接凸部 217 与该料带 10 相 连处设有切痕 25，借以易于折断而使端子 20 与料带 10 分离，该弹动部 21 为一弯折的弹臂，该弹动部 21 先延伸至第二壁 55 再回转向固定部 23 延伸并逾过该第一壁 54 至前排的端子槽 53 上方，该弹动部 21 接近末端设有一接点 28，该接点 28 为端子的最高点且凸出该端子槽 53 至该放置区 52，当该接点 28 受力时弹动部 21 可上下弹动，该接脚部 24 是由该通道 58 伸至该锡球槽 56，该接脚部 24 弯折挡扣该锡球 57 一侧。

[0136] 本实施例的特点在于该每一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与

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二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为固定部 23 和接脚部 24。

[0137] 该相邻端子 20 的接脚部间距 X 等于该固定部 23 宽度 Y，该一端子的固定部 23 的形状可反向且反面接合于二相邻端子的接脚部 24 间隔区域且无缝隙靠合该二相邻端子的接脚部 24。

[0138] 借由以上构造，由于相邻端子 20 的接脚部间距 X 等于该固定部 23 的宽度 Y，请参阅图 37 及图 38，在冲压制造上，二排间隔排列相连接的端子可对接排列由同一金属片冲压，即第一排端子 1 的各端子 20 的固定部 23 恰可对接于第二排端子 2 的相邻端子 20 的接脚部 24 间，如此一金属片冲压出二排端子，除了相连的料带外完全无废料形成，明显可节省材料，降低制造成本。

[0139] 请参阅图 39 及图 40，是为本实用新型第十二实施例，本实施例大致与第十一实施例相同，其差别在于本实施例端子 20 的弹动部 21 是连接于该固定部 23 上端一侧，该固定部 23 上端另一侧则设有一连接凸部 217 与该料带 10 相连。

[0140] 请参阅图 41 及图 42，是为本实用新型第十三实施例，本实施例大致与第十一实施例相同，其差别在于本实施例端子 20 的固定部 23 上端一侧设有一连接凸部 217 与该料带 10 相连，该弹动部 21 是连接于该连接凸部 217 一侧且转折与连接凸部 217 成 90 度夹角，另外，该端子 20 的固定部 23 设有宽度更为凸出的倒刺 218，该接脚部 23 设有宽度更小的凹部 219，该倒刺 218 可无缝隙接合该凹部 219。

[0141] 请参阅图 43 及图 44，是为本实用新型第十四实施例，其是为一 D-SUB 电连接器，其包括有：一塑胶座体 30、二排端子 20、及一金属外壳 40，其中：

[0142] 该塑胶座体 30 是为架高型式者，其内设有多个端子槽 31 及多个连接槽 32，该多数的端子槽 31 及多个连接槽 32 由上而下呈二排，其前端设有一凸部 310，该凸部 310 前端设有多个插孔 312 对应该多个连接槽 32，及设有凹陷的卡槽 36，另该每一端子槽 31 上端设有宽度较小的开口 33 与该连接槽 32 相通，使该开口的二侧形成抵缘 39 及设有凹陷的卡槽 36，另外，设有一后盖 38 盖于该塑胶座体 30 后方。

[0143] 该二排端子 20 对应组装于该塑胶座体的二排端子槽 31，该每一端子 20 由一端至另一端依序设有一弹动部 21、一固定部 23 及一接脚部 24，该弹动部 21 为单一力臂且板面呈水平并可弹动，该弹动部 21 接近末端的板面刺破冲压凸出一宽度较窄的接点 215，该弹动部 21 末端反折设有一与该接点 215 反向凸出的辅助力臂 220，该弹动部 21 弹性抵于该抵缘 39，该接点 215 凸出至该连接槽 32，该辅助力臂 220 抵于该端子槽 31 的一壁面，该固定部 23 设有第一、二端，第一端连接弹动部 21，第二端连接接脚部 24，

[0144] 该固定部 23 与该卡槽 36 卡定，该固定部 23 弯折成二垂直板面，纵向板面向下延伸并连接该接脚部 24，该接脚部 24 的板面弯折使截面呈 ㄇ 形状并伸出该塑胶座体。

[0145] 该金属外壳 40 套合于塑胶座体 30 前端，其包覆该凸部 310 的周边面使凸部前面的插孔 312 露出。

[0146] 请参阅图 45，借由以上构造，当公接头 68 插入时，公接头 68 的二排端子 69 插入该二排连接槽 32，该端子 69 挤压该接点 215，使该弹动部 21 向下弹动，同时该辅助力臂 220 亦被压缩，如此借由该弹动部 21 的弹性及辅助力臂 220 的弹性而能提供该公接头 68 的端子 69 与接点 215 良好的弹性接触。

[0147] 本实施例的特点在于该每一排端子 20 是为一金属片对撕冲压所形成相同二排端

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子的其中一排，该二排端子的每一端子 20 具有一对撕冲切部位相互无缝对接，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为固定部 23，一排端子中二相邻端子的固定部 23 由第一端至第二端依序的间距等于其中一端子的固定部 23 由第二端至第一端依序的宽度，本实施例的固定部 23 由第一端至第二端 为同一宽度，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的固定部 23 与二相邻端子的固定部 23 无缝接合。

[0148] 本实施例的端子 20 在冲压制造上如图 46 所示，二排间隔排列相连接的端子是由一片金属片对接排列冲压而成，由于第一排端子 1 的各端子 20 的固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的固定部 23 之间，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折固定部 23。

[0149] 请参阅图 47，是为本实用新型第十五实施例，其大致与第十四实施例相同，其差异在于本实施例的塑胶座体较第十四实施例为低，故固定部 23 及接脚部 24 均较短，本实施例的对撕冲切部位亦为固定部 23，该固定部 23 为均一宽度，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的固定部 23 与二相邻端子的固定部 23 无缝接合。本实施例端子 20 在冲压制造上，二排间隔排列相连接的端子是由一片金属片对接排列冲压而成，由于第一排端子 1 的各端子 20 的固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的固定部 23 之间，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折固定部 23。

[0150] 请参阅图 48，是为本实用新型第十六实施例，其大致与第十五实施例相同，本实施例的一排端子 20 是连接一料带 10，其为一金属片对撕冲压所形成相同二排端子的其中一排端子，每一端子 20 由一端至另一端设有一弹动部 21、一固定部 23、及一接脚部 24；该弹动部 21 的板面冲压凸出一接点 215，该接脚部 24 的两侧各无缝接合一连接片 225，该二连接片 225 是一端连接料带，另一端连接于固定部 23 一端，并设有折痕以方便折断。

[0151] 本实施例特点同样在于该每一排端子 20 是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子 20 具有一对撕冲切部位相互无缝对接，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为弹动部 21、固定部 23 和接脚部 24 两侧的连接片 225，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的弹动部 21 及固定部 23 和二相邻端子的接脚部 24 两侧的连接片 225 无缝接合。

[0152] 本实施例端子 20 在冲压制造上，二排间隔排列相连接的端子是由一片 金属片对接排列冲压而成，由于第一排端子 1 的各端子 20 的弹动部 21 和固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的接脚部 24 两侧的连接片 225，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折固定部 23。

[0153] 请参阅图 49 及图 50，是为本实用新型第十七实施例，其是为一直立式 D-SUB 电连接器，其包括有：一塑胶座体 30、三排端子 20、及一金属外壳 40，其中：

[0154] 该塑胶座体 30 是直立式者，其内设有多个端子槽 31 及多个连接槽 32，该多数的端子槽 31 及多个连接槽 32 呈三排，其上端设有一凸部 310，该凸部 310 前端设有多个插孔

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312 对应该多个连接槽 32，该每一端子槽 31 如同第十四实施例设有宽度较小的开口 33 与该连接槽 32 相通，该开口的二侧形成抵缘 39。

[0155] 该三排端子 20 对应组装于该塑胶座体的三排端子槽 31，该每一端子 20 由一端至另一端依序设有一弹动部 21、一延伸部 22、一固定部 23 及一接脚部 24，该弹动部 21 为单一力臂且板面呈纵向并可弹动，该弹动部 21 接近末端的板面刻破冲压凸出一宽度较窄的接点 215，该弹动部 21 弹性抵于该抵缘 39，该接点 215 凸出至该连接槽 32，该固定部 23 及延伸部 22 与该端子槽 31 卡定，该接脚部 24 伸出该塑胶座体 30。

[0156] 该金属外壳 40 套合于塑胶座体 30 前端，其包覆该凸部 310 的周边面使凸部上面的插孔 312 露出。

[0157] 请参阅图 51，本实施例的一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排端子，其包括有：一料带 10 及多个端子 20，其中：

[0158] 该料带 10，其上设有多个间隔排列的长形孔 11。

[0159] 该多个端子 20 呈间隔排列连接于该料带 10，该弹动部 21 设有第一、二端，该延伸部 22 设有第一、二端，该固定部 23 设有第一、二端，该弹动部 21 的第一端为端子的尾端，该弹动部 21 的第二端连该接延伸部 22 第一端，该延伸部 22 第二端连接该固定部 23 的第一端，该固定部 23 的第二端连接该接脚 24 及该料带 10，该固定部 23 宽度较弹动部 21 宽度为宽，本实施例的端子的弹动部 21 及固定部 23 由第一端至第二端呈同一宽度，而该延伸部 22 由第一端至第二端则呈凸凹间隔形状。

[0160] 本实施例的端子 20 的构造大致与第一实施例相同，同样是该两相邻端 子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，该固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，该延伸部 22 的形状可反向无缝隙接合于两相邻端子的延伸部 22 间隔区域。

[0161] 借由以上构造，端子在冲压制造上，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的延伸部 22 及固定部 23 分别无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 及弹动部 21 之间，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折冲压该弹动部 21。

[0162] 请参阅图 52，是为本实用新型第十八实施例，本实施例的端子 20 的构造大致与第十七实施例相同，其差异仅在于本实施例的第一排端子 1 的端子 20 的延伸部 22 与第一排端子 2 的端子 20 的延伸部 22 对接时形成部份间隙 226。

[0163] 在较佳实施例的详细说明中所提出的具体的实施例仅为了易于说明本实用新型的技术内容，而并非将本实用新型狭义地限制于该实施例，在不超出本实用新型的精神及以下申请专利范围的情况，可作种种变化实施。

Samsung, EX1019, p. 459

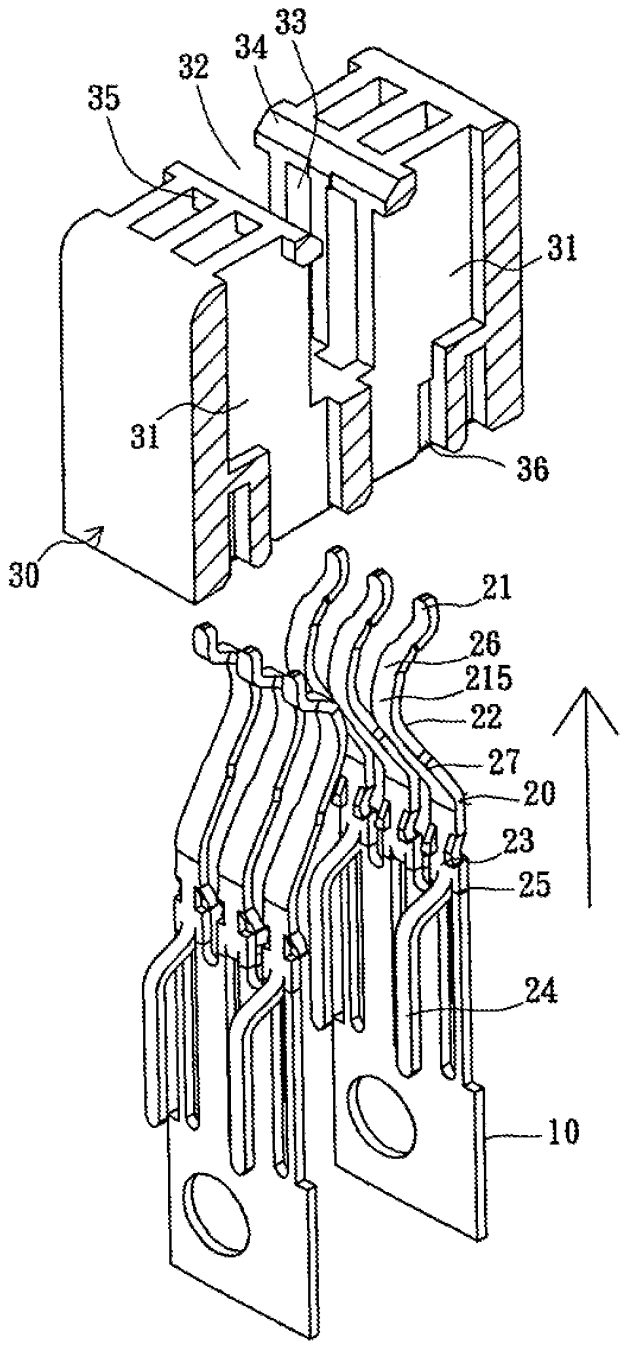


图 1

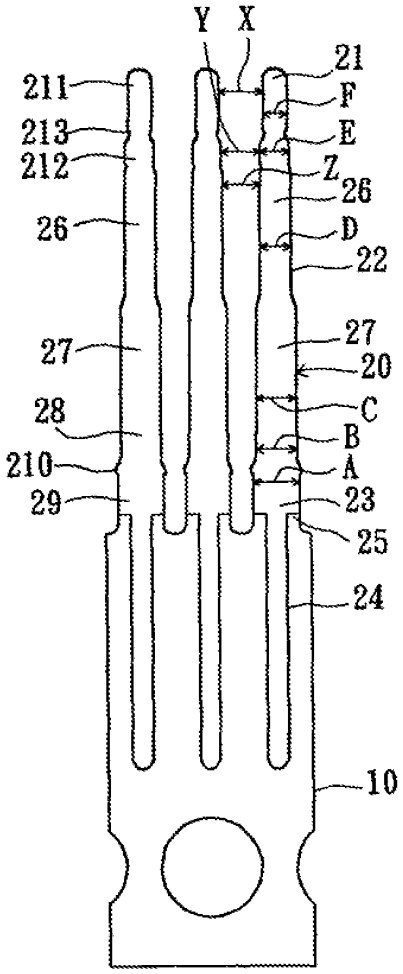


图 2

Samsung, EX1019, p. 460

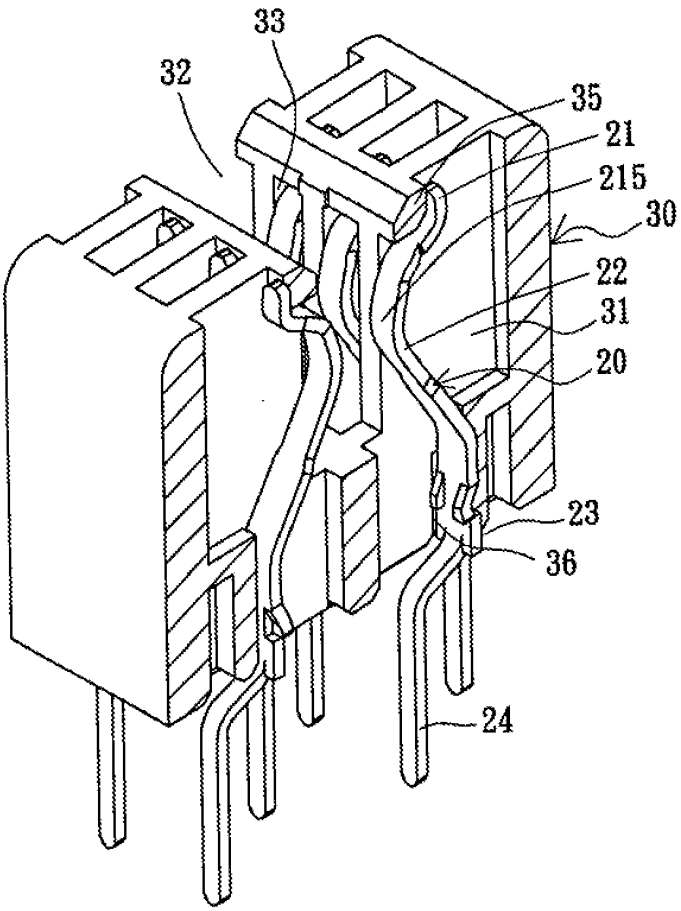


图 3

Samsung, EX1019, p. 461

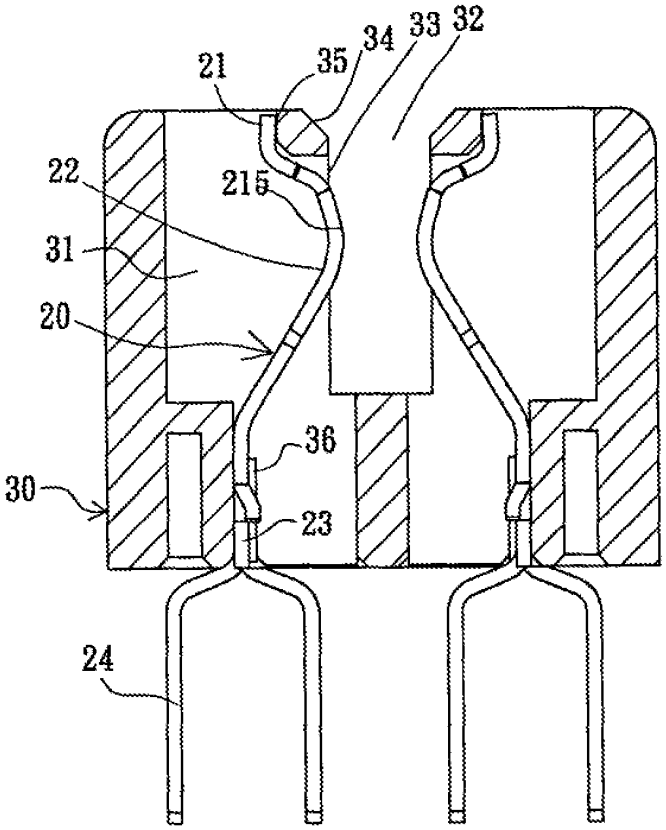


图 4

Samsung, EX1019, p. 462

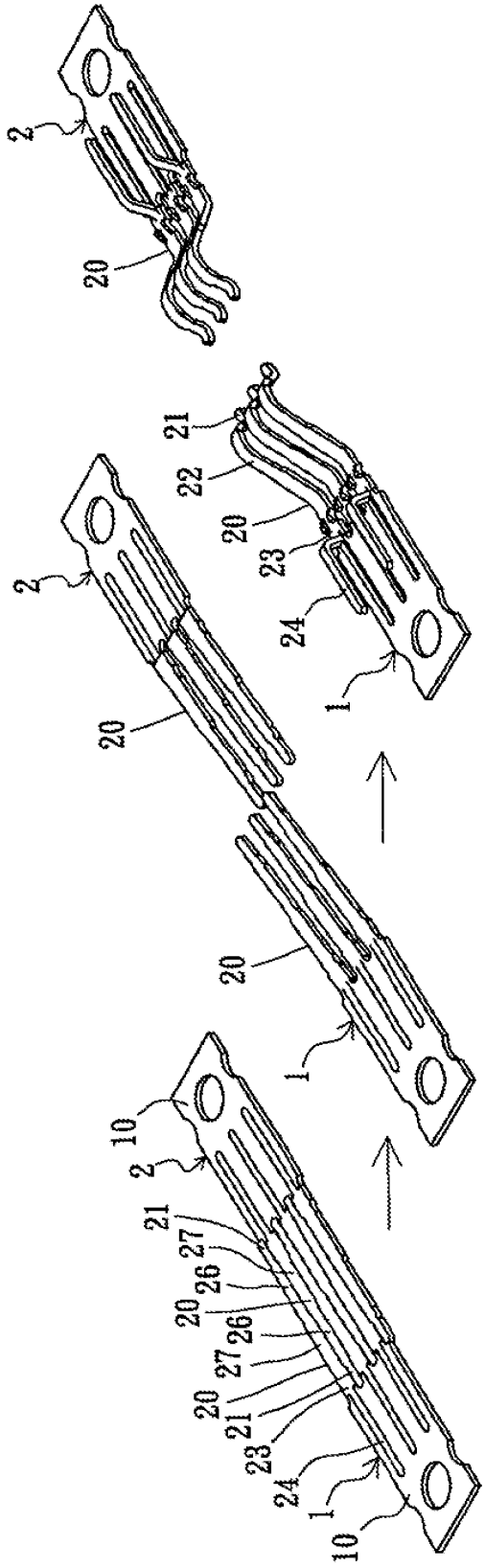


图 5

Samsung, EX1019, p. 463

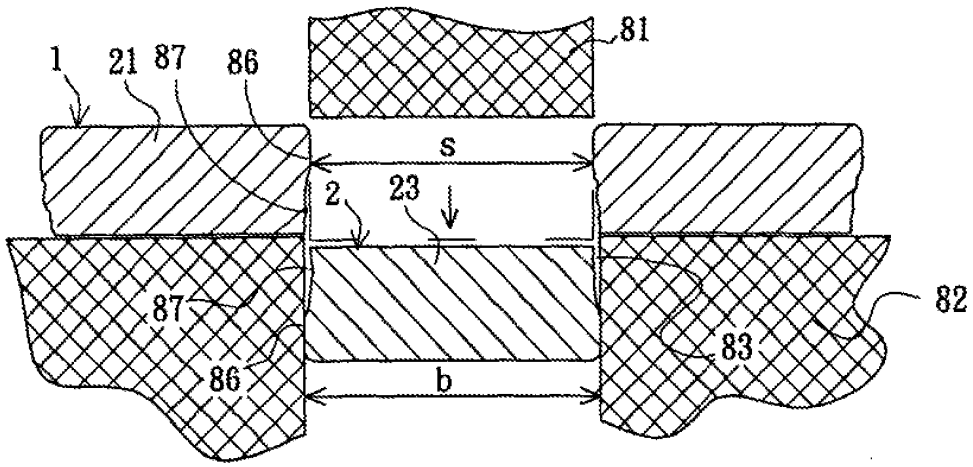


图 6

Samsung, EX1019, p. 464

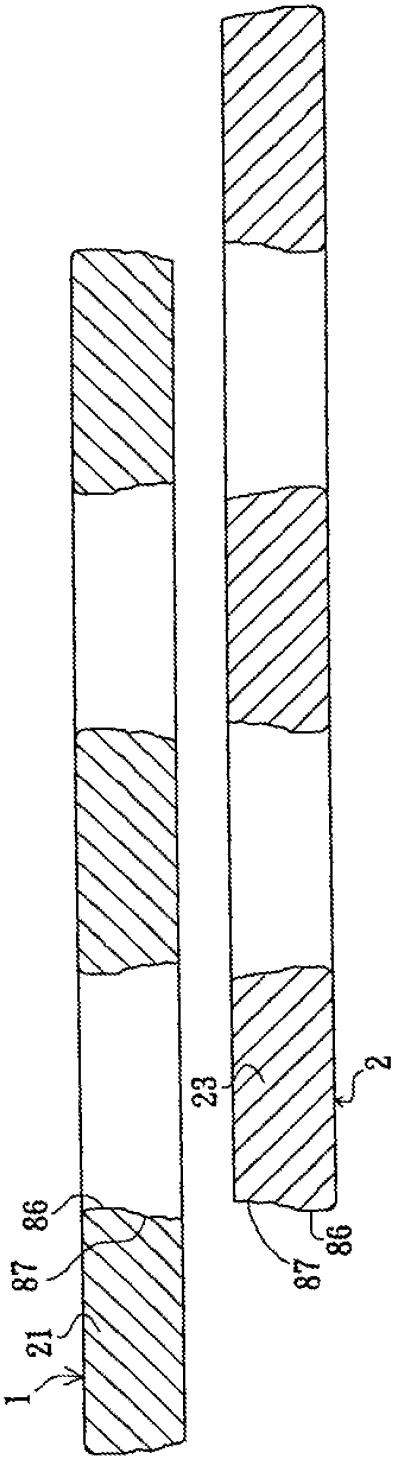


图 7

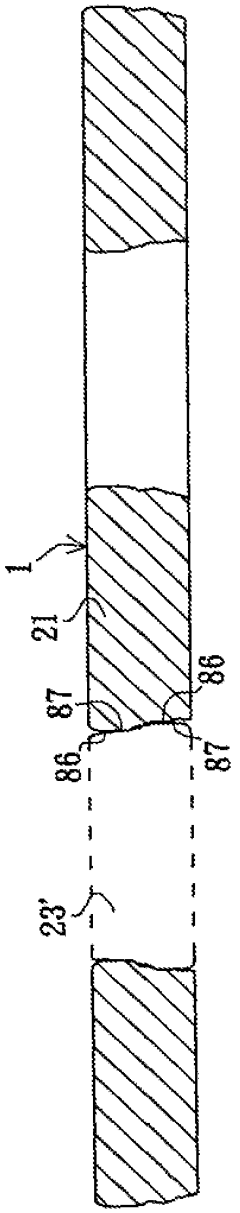


图 8

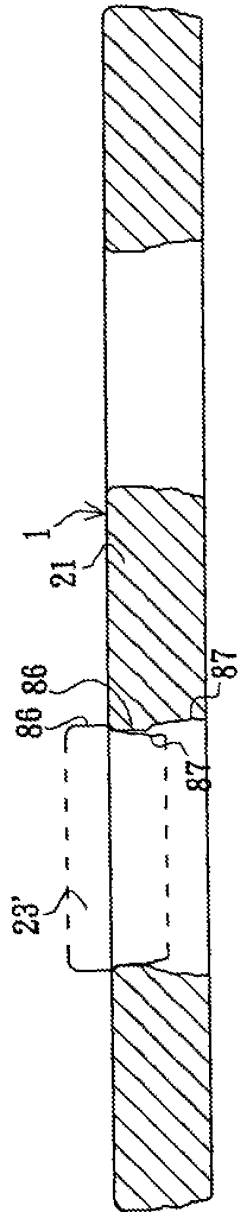


图 9

Samsung, EX1019, p. 465

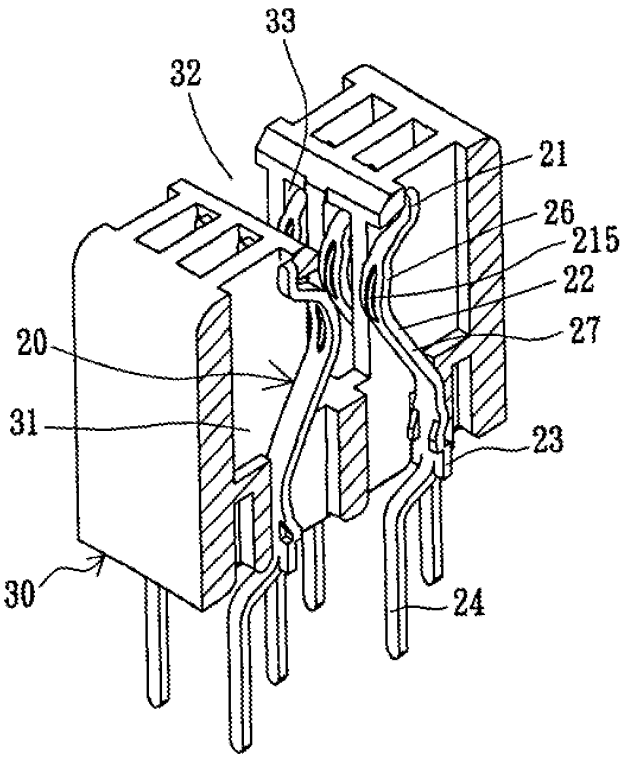


图 10

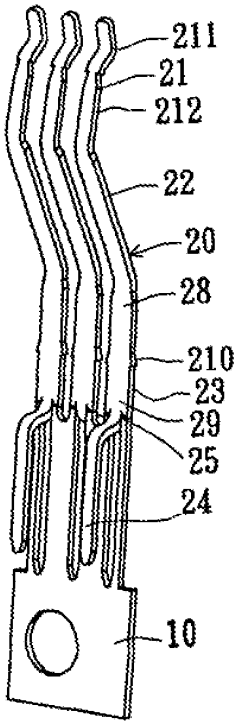


图 11

Samsung, EX1019, p. 466

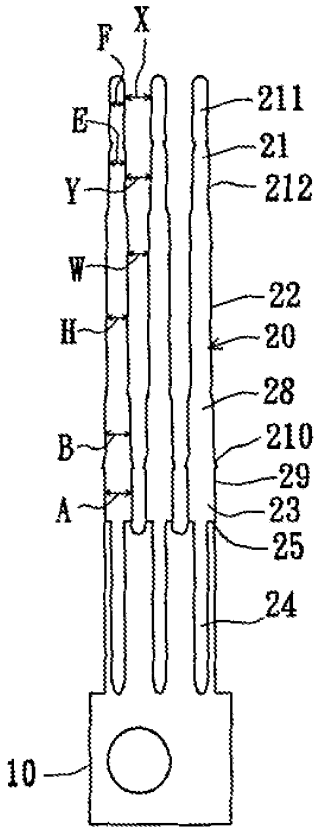


图 12

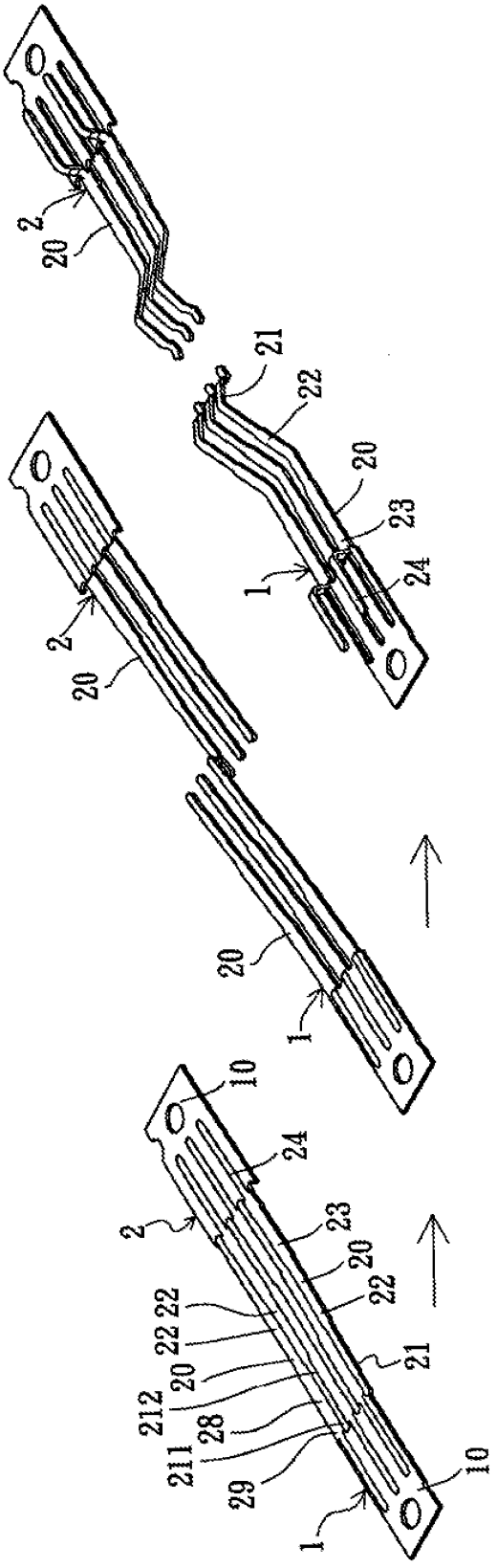


图 13

Samsung, EX1019, p. 467

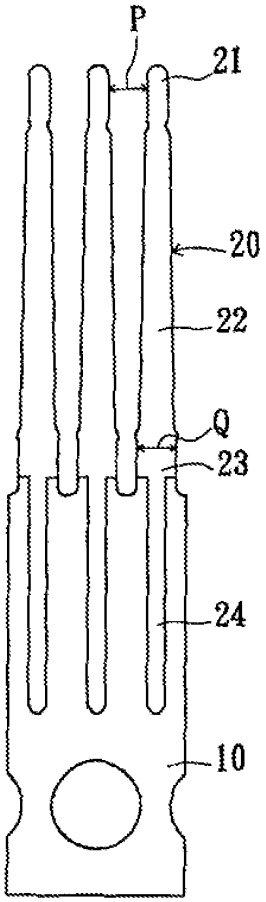


图 14

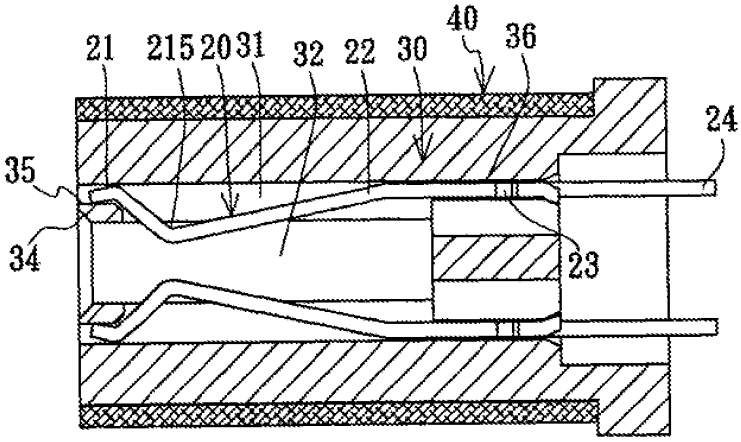


图 15

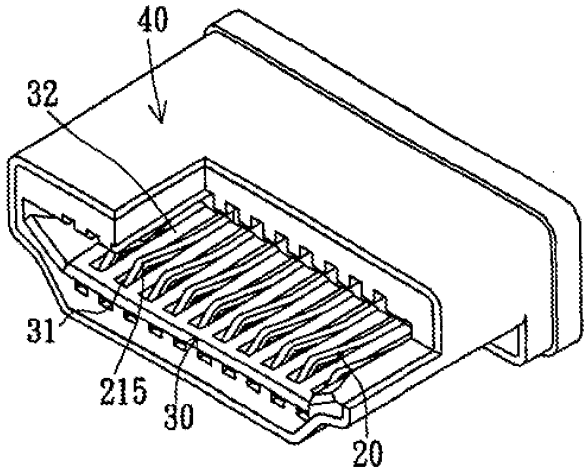


图 16

Samsung, EX1019, p. 468

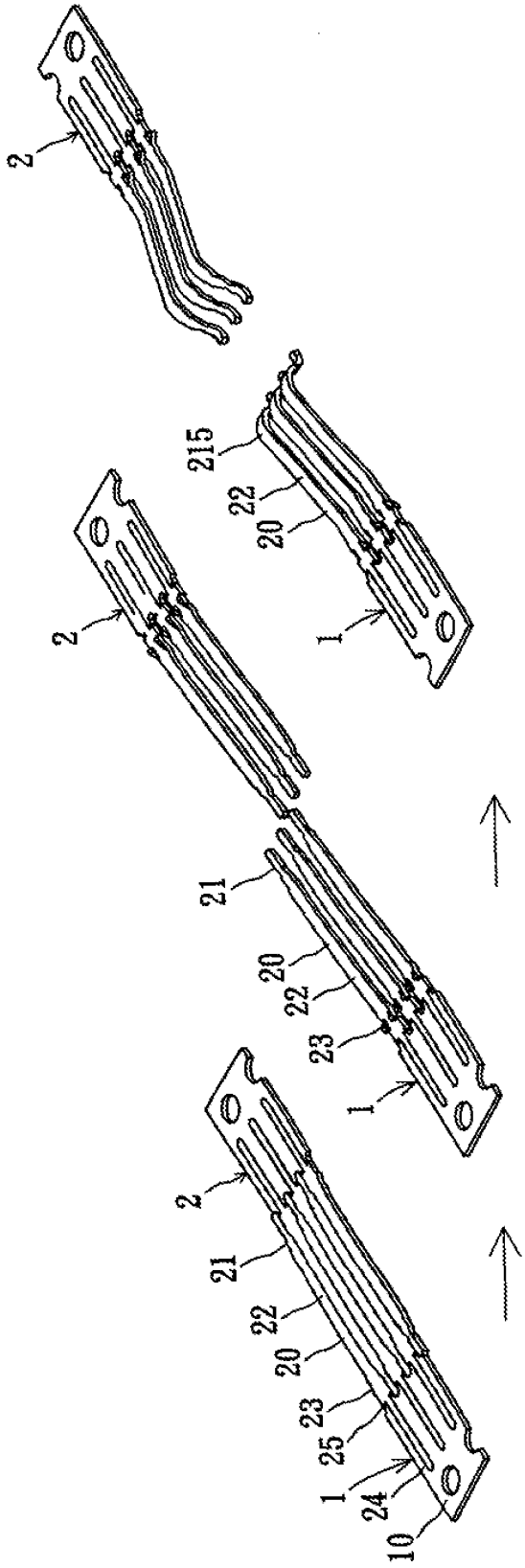


图 17

Samsung, EX1019, p. 469

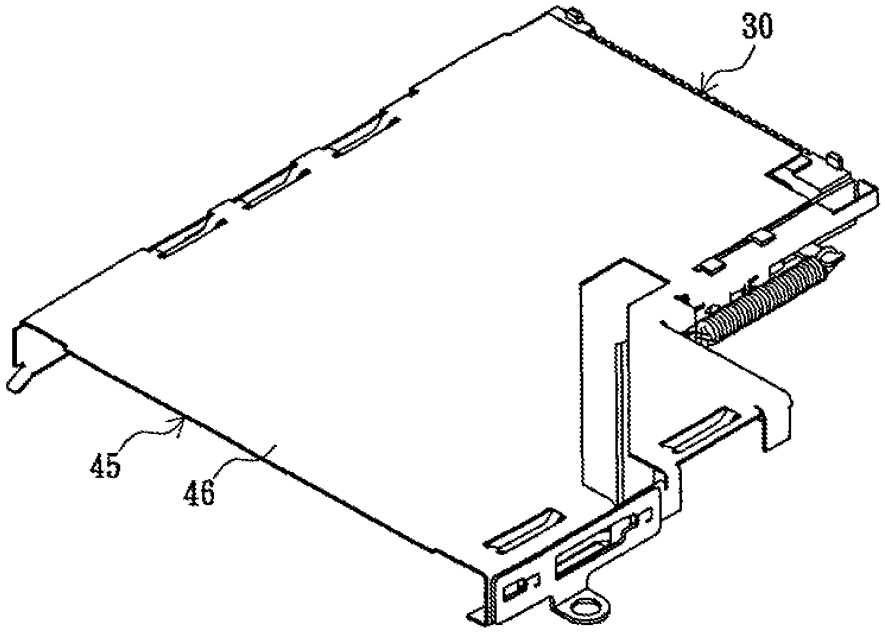


图 18

Samsung, EX1019, p. 470

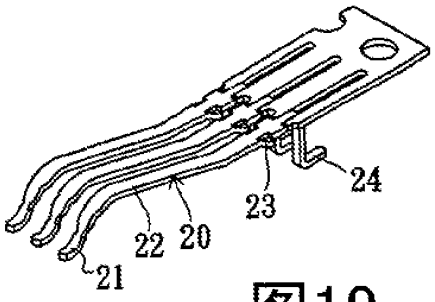
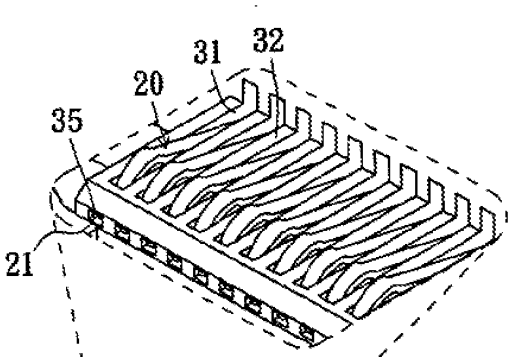


图19



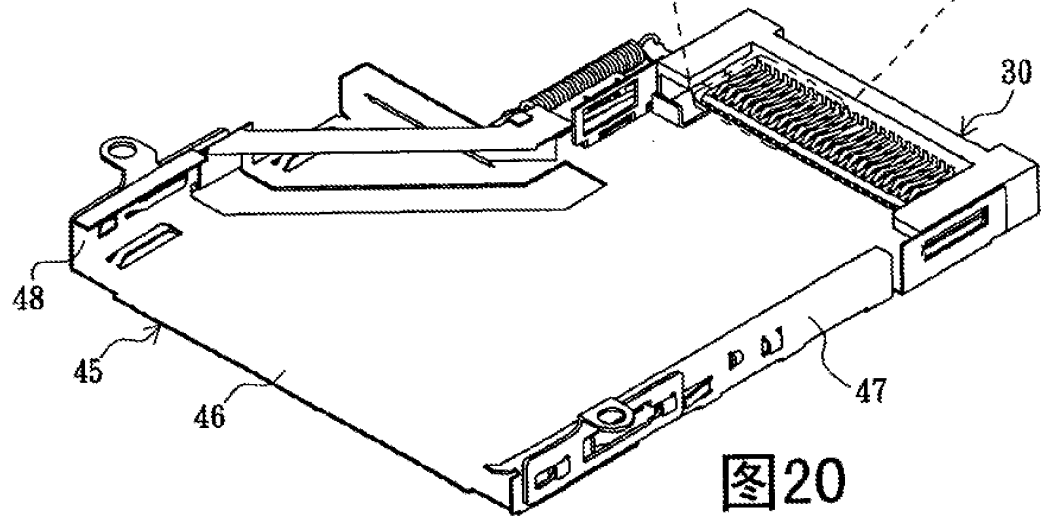
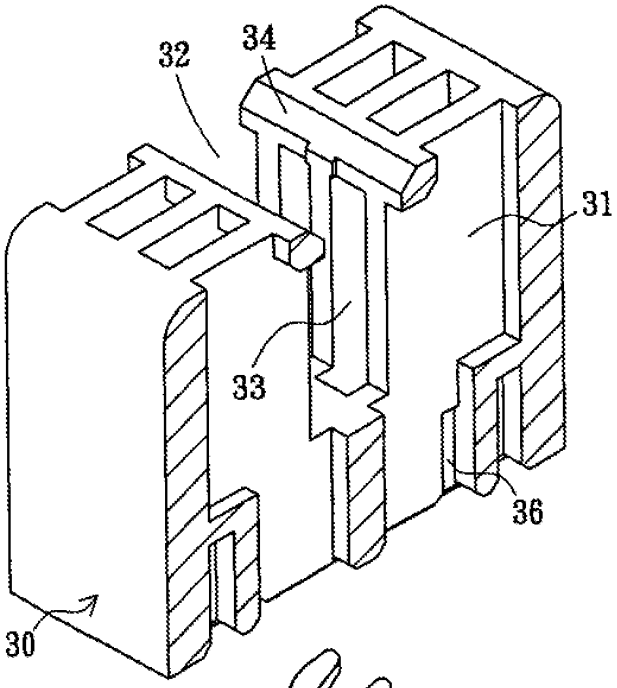


图20

Samsung, EX1019, p. 471



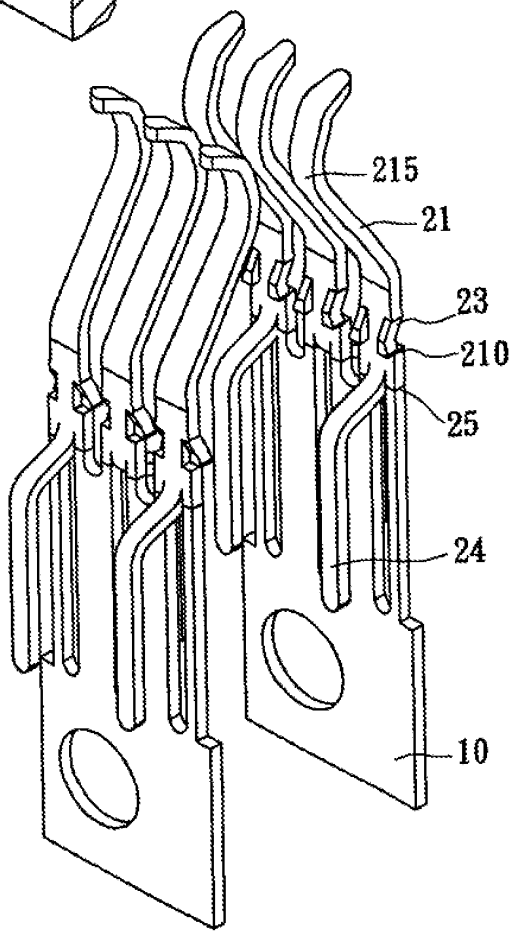


图 21

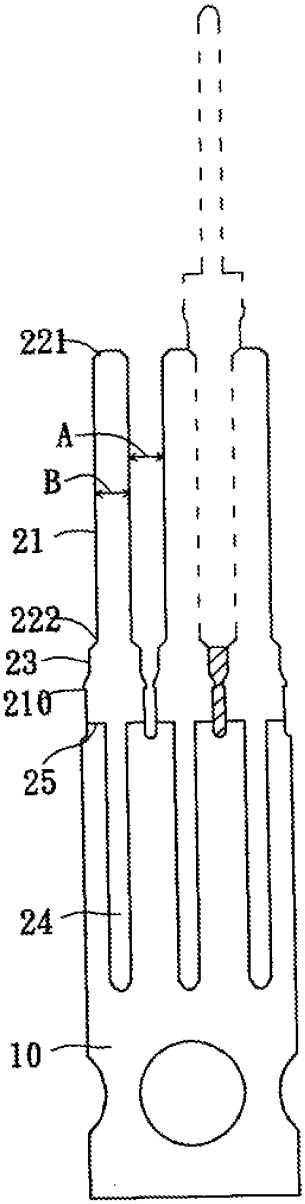


图 22

Samsung, EX1019, p. 472

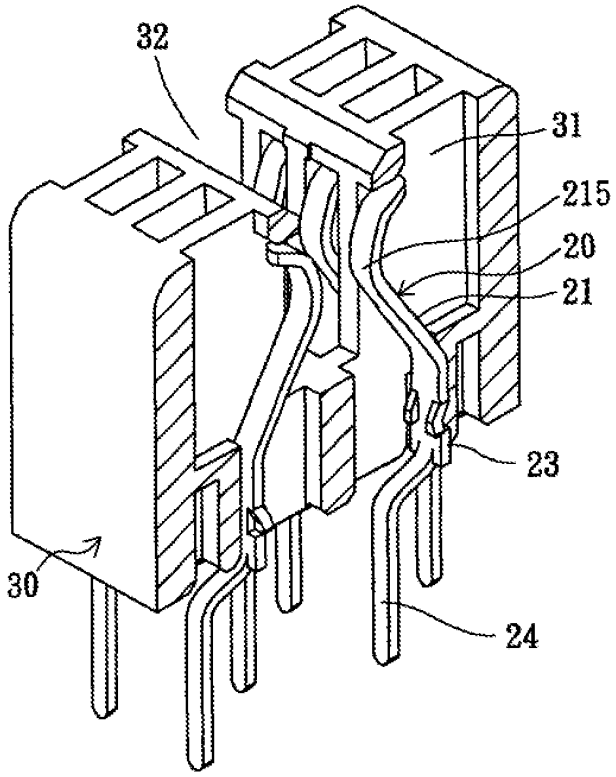


图 23

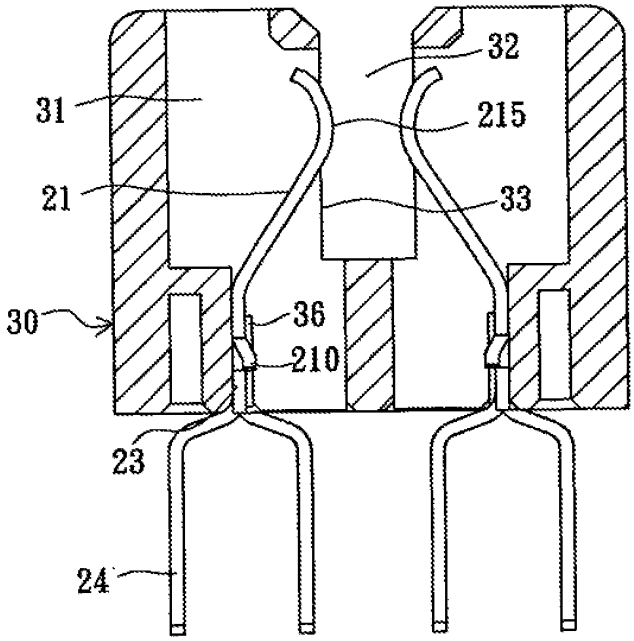


图 24

Samsung, EX1019, p. 473

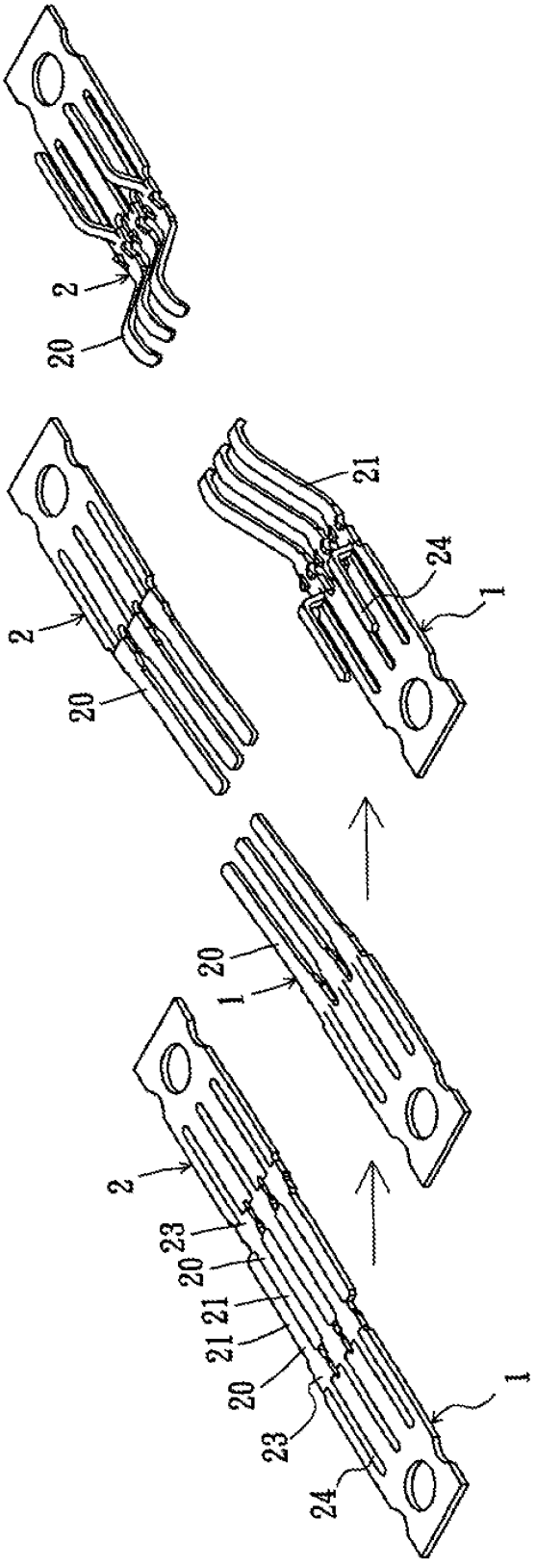


图 25

图 26

Samsung, EX1019, p. 474

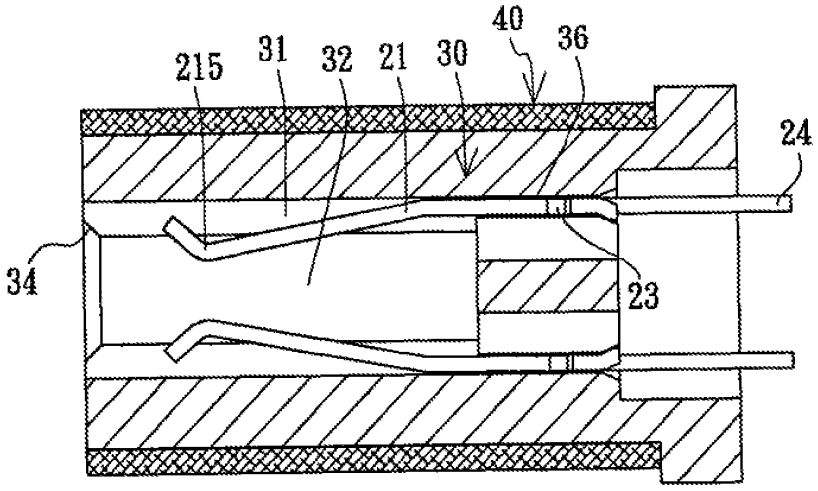


图 27

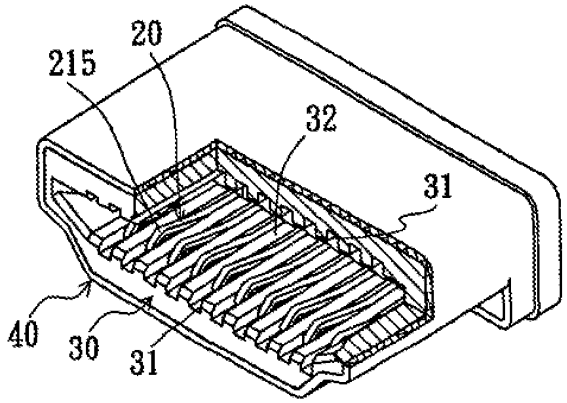


图 28

Samsung, EX1019, p. 475

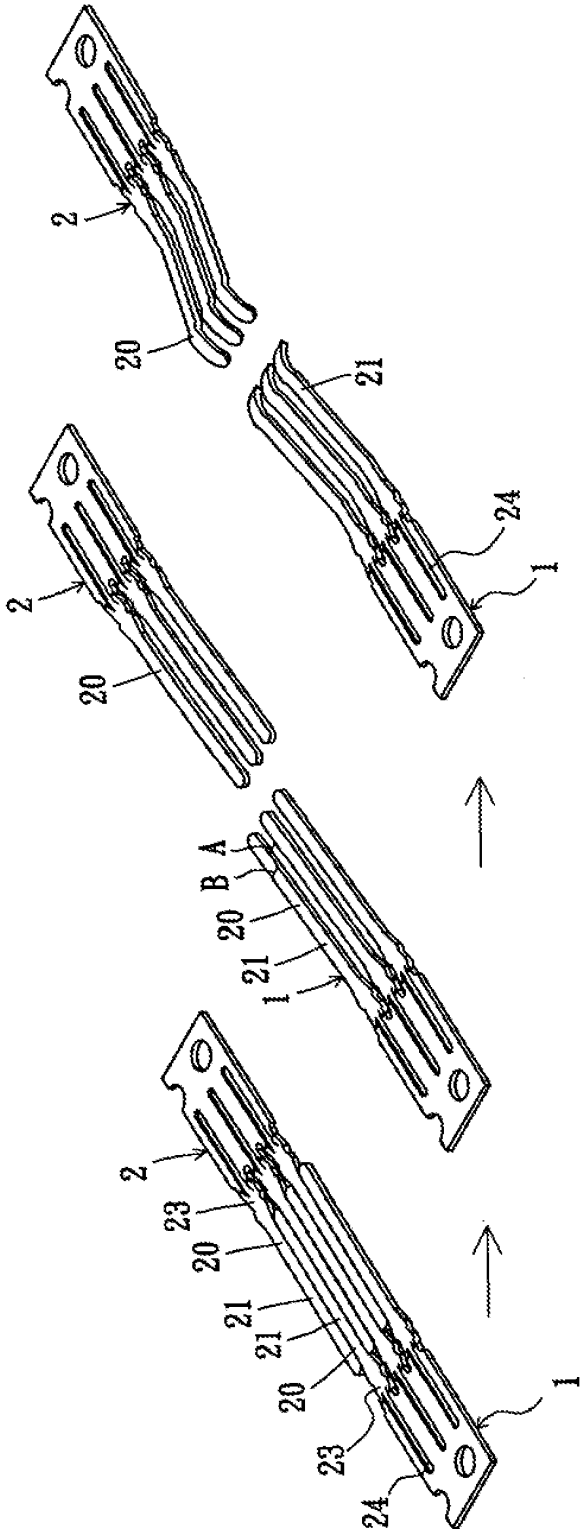


图 29

Samsung, EX1019, p. 476

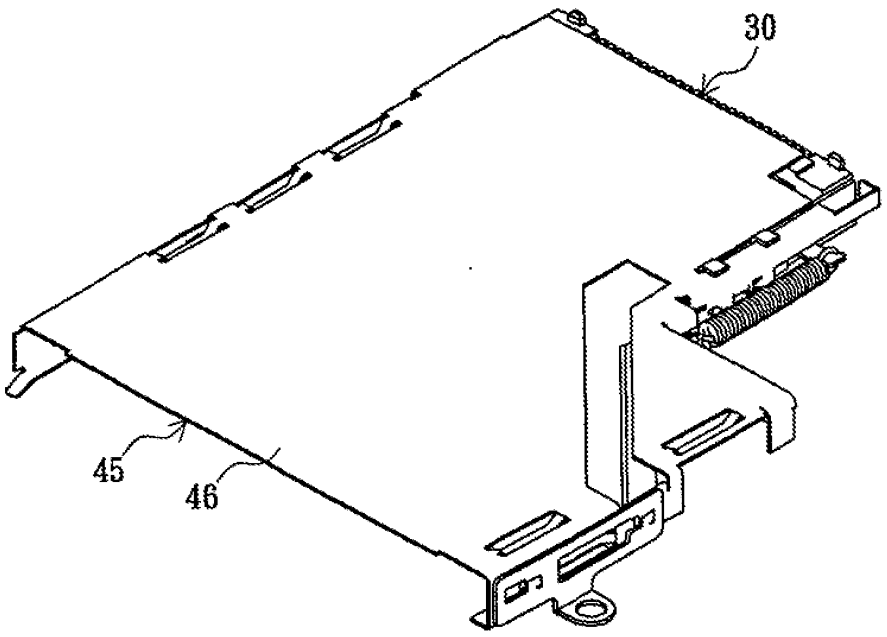


图 30

Samsung, EX1019, p. 477

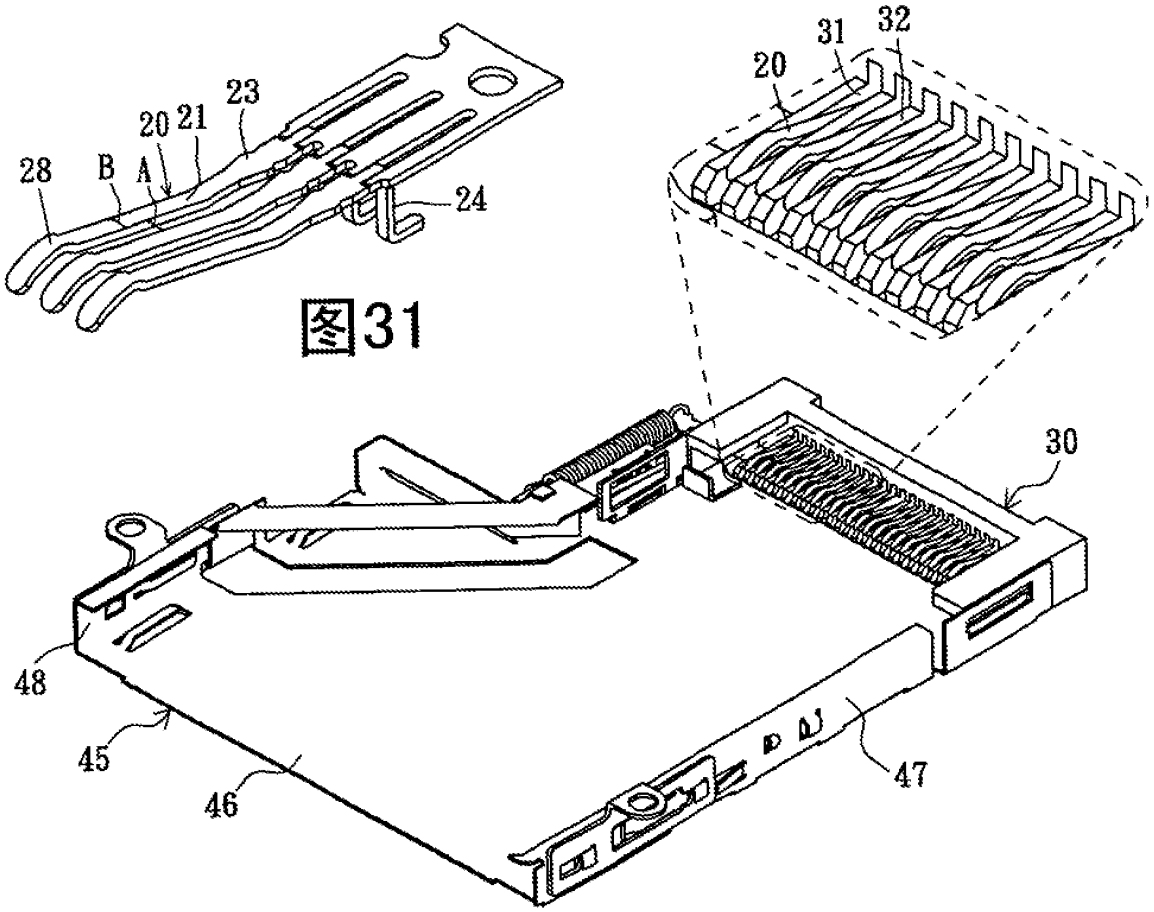


图31

图 32

Samsung, EX1019, p. 478

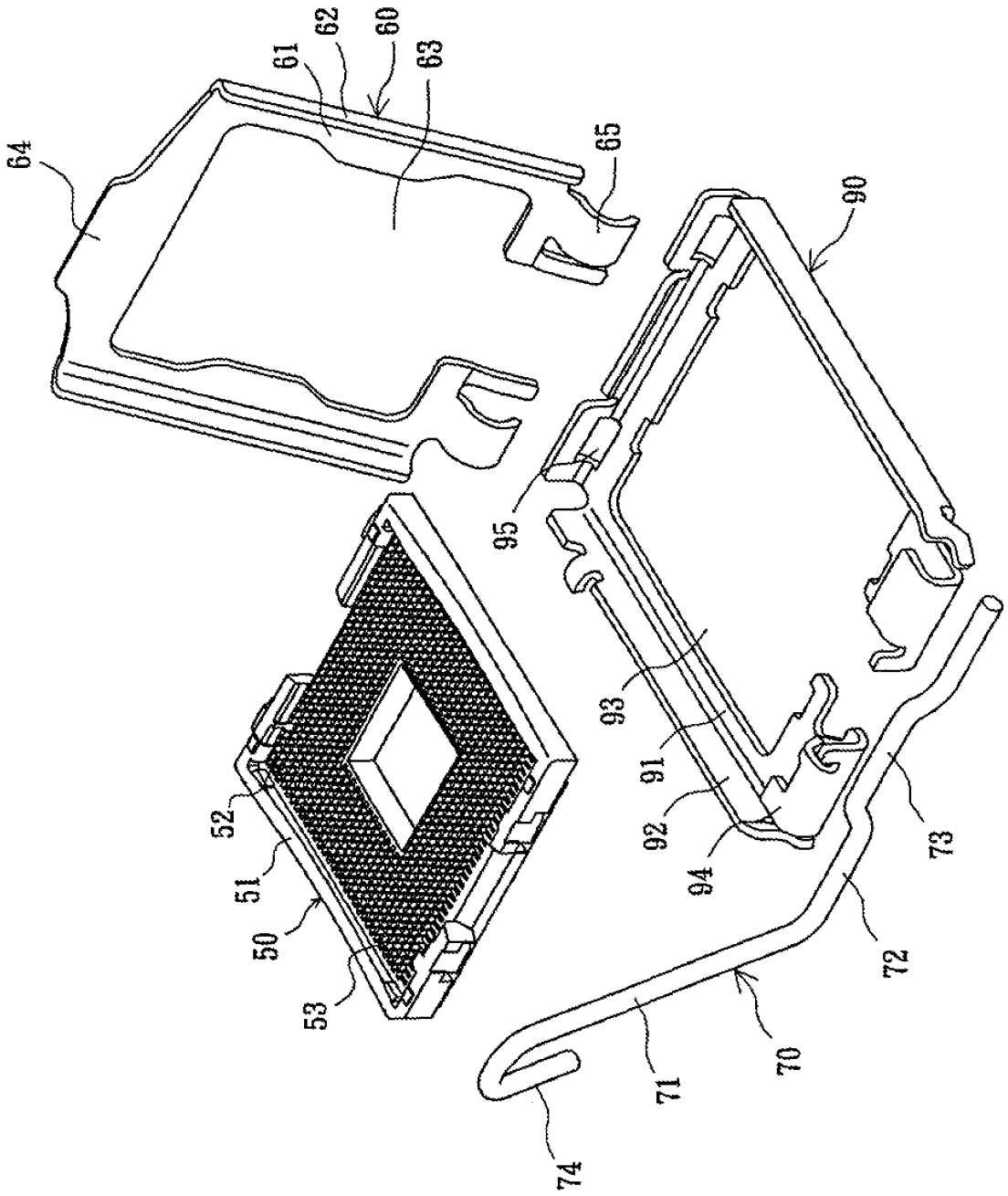


图 33

Samsung, EX1019, p. 479

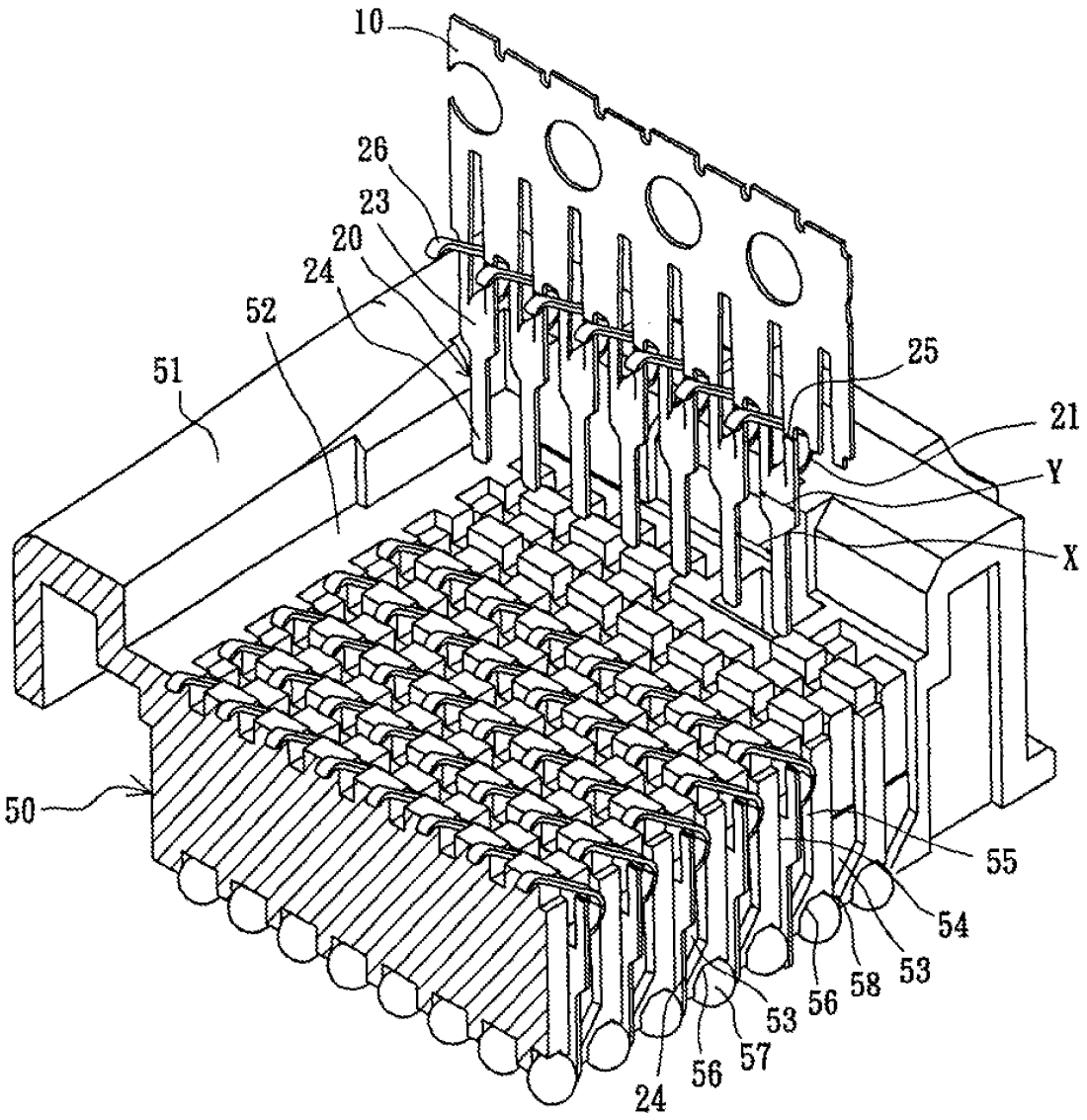


图 34

Samsung, EX1019, p. 480

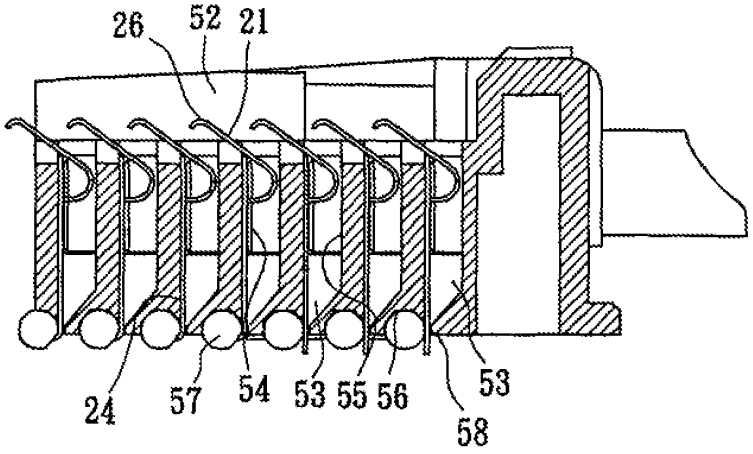


图 35

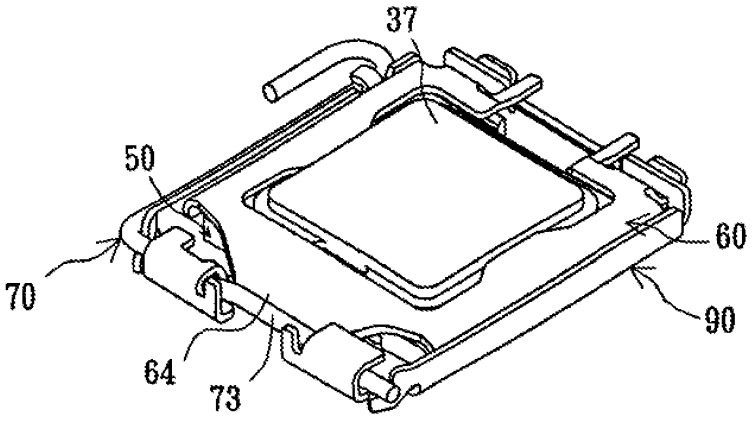


图 36

Samsung, EX1019, p. 481

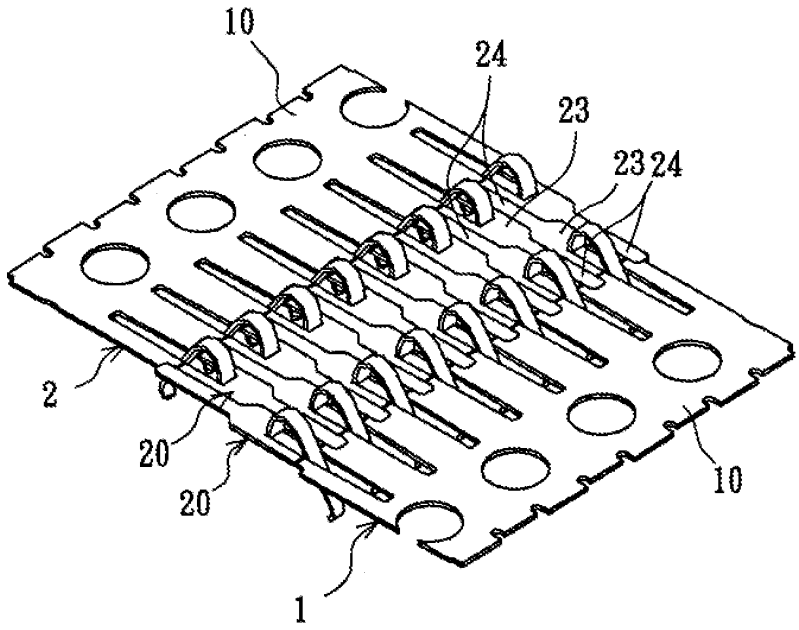


图 37

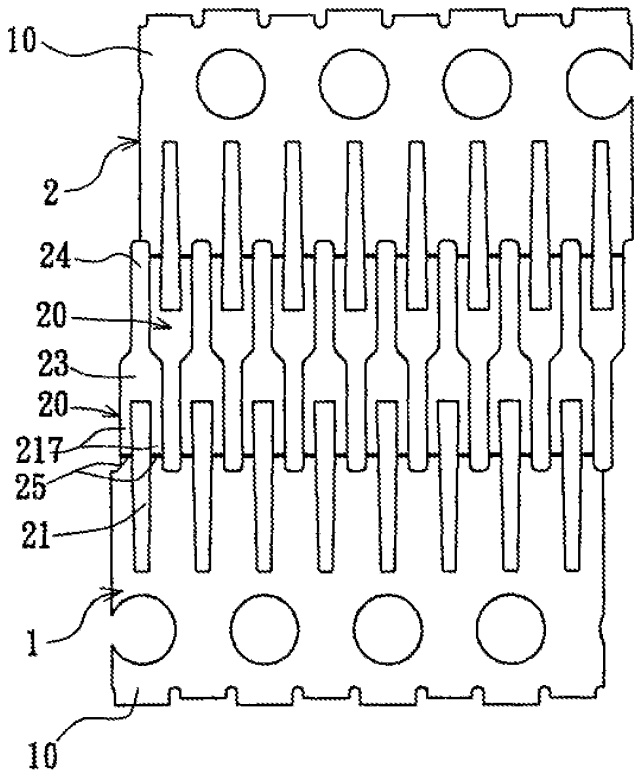


图 38

Samsung, EX1019, p. 482

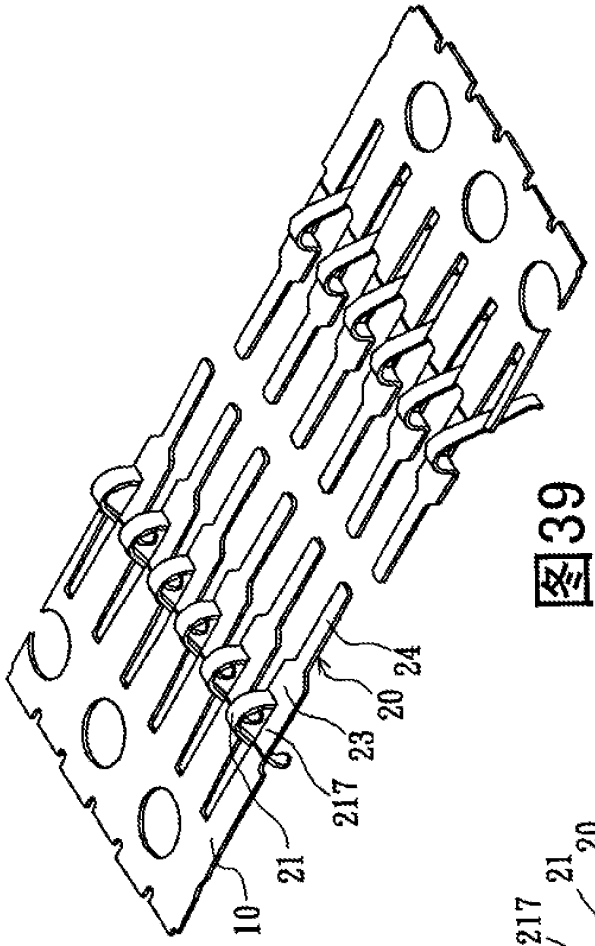


图39

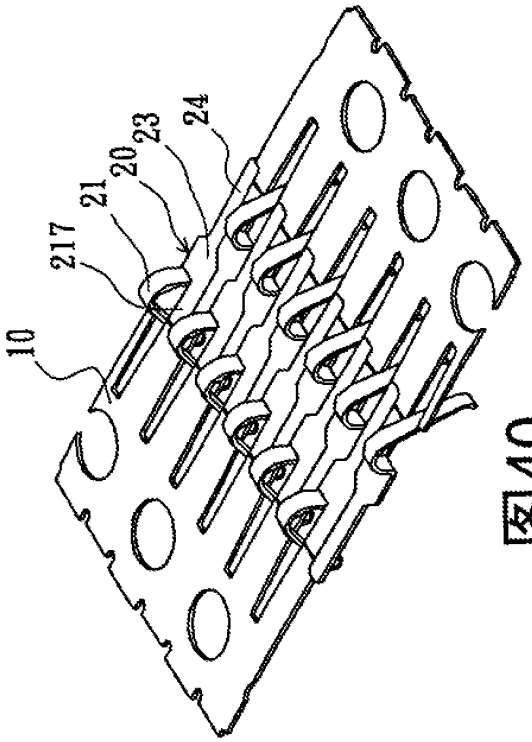


图40

Samsung, EX1019, p. 483

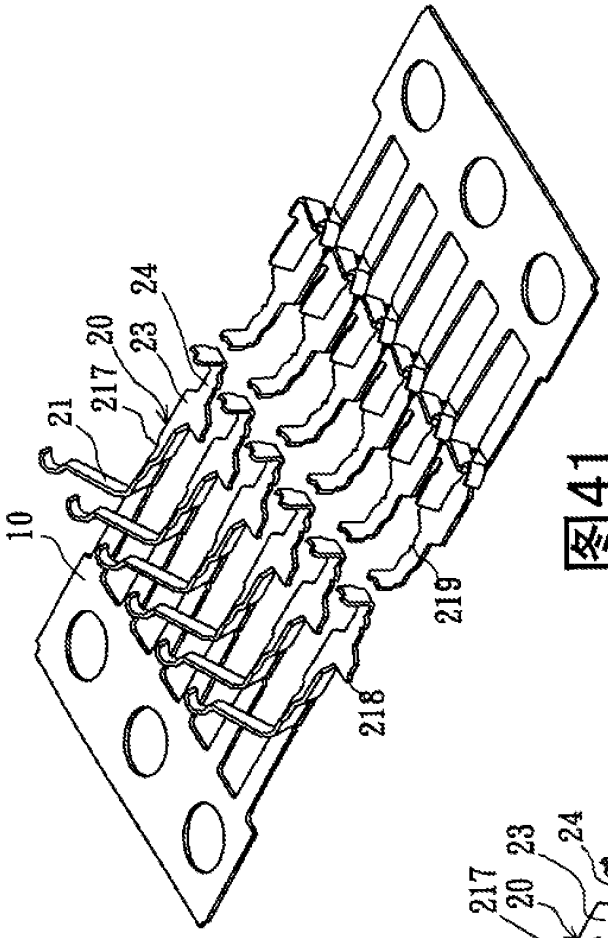


图41

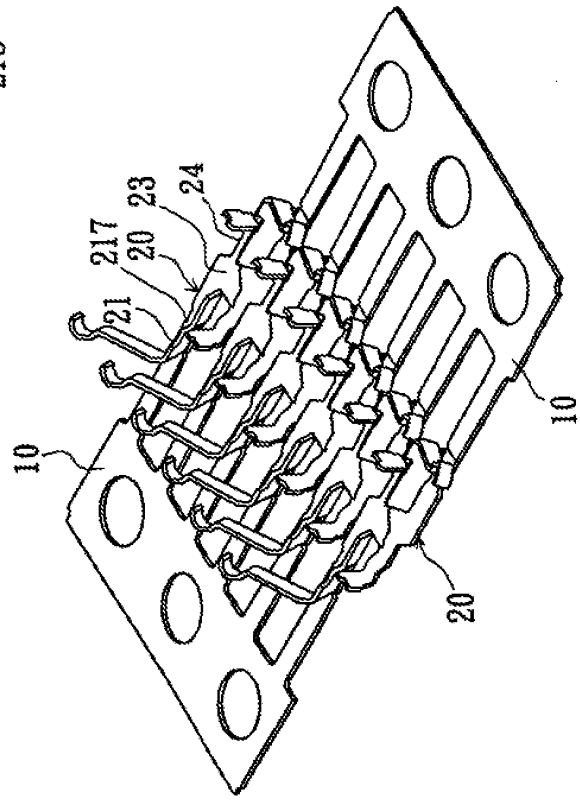


图42

Samsung, EX1019, p. 484

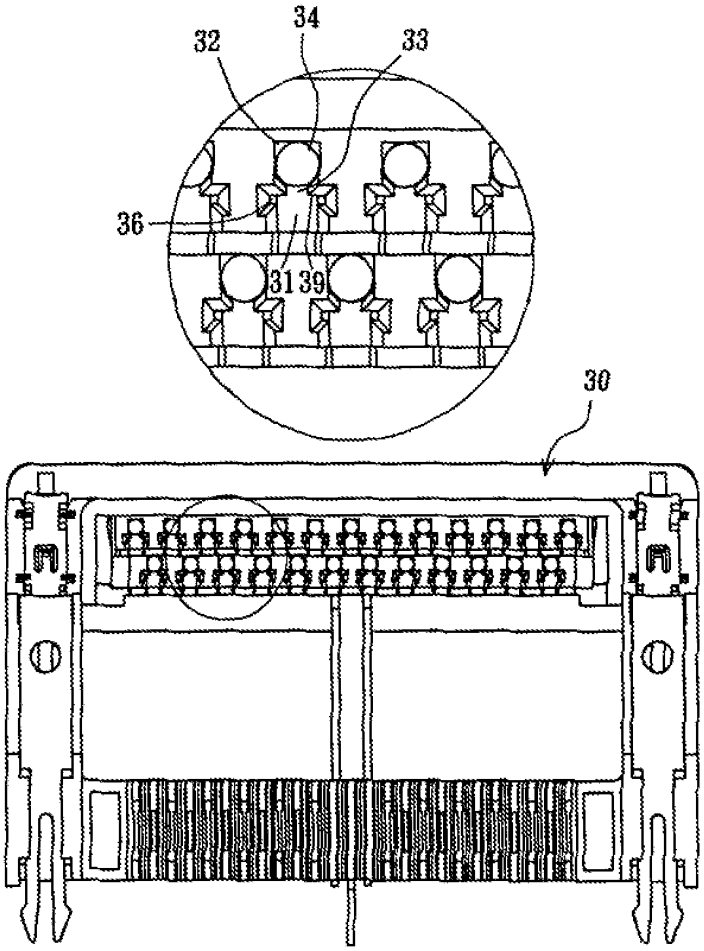


图 44

Samsung, EX1019, p. 485

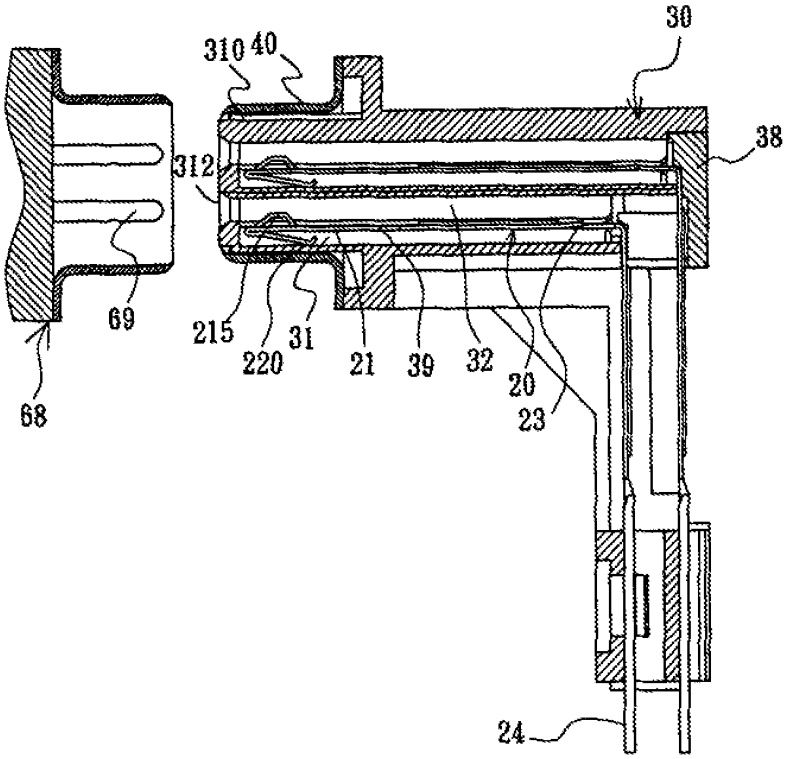


图 43

Samsung, EX1019, p. 486

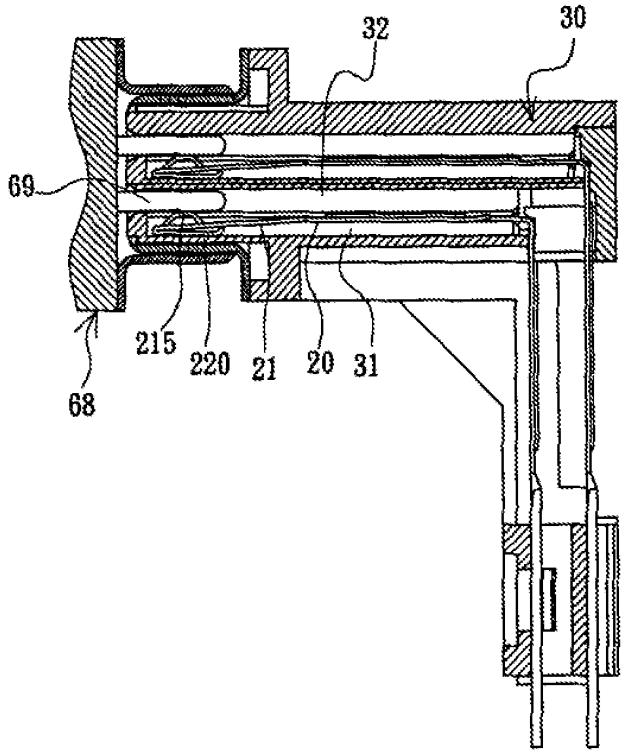


图 45

Samsung, EX1019, p. 487

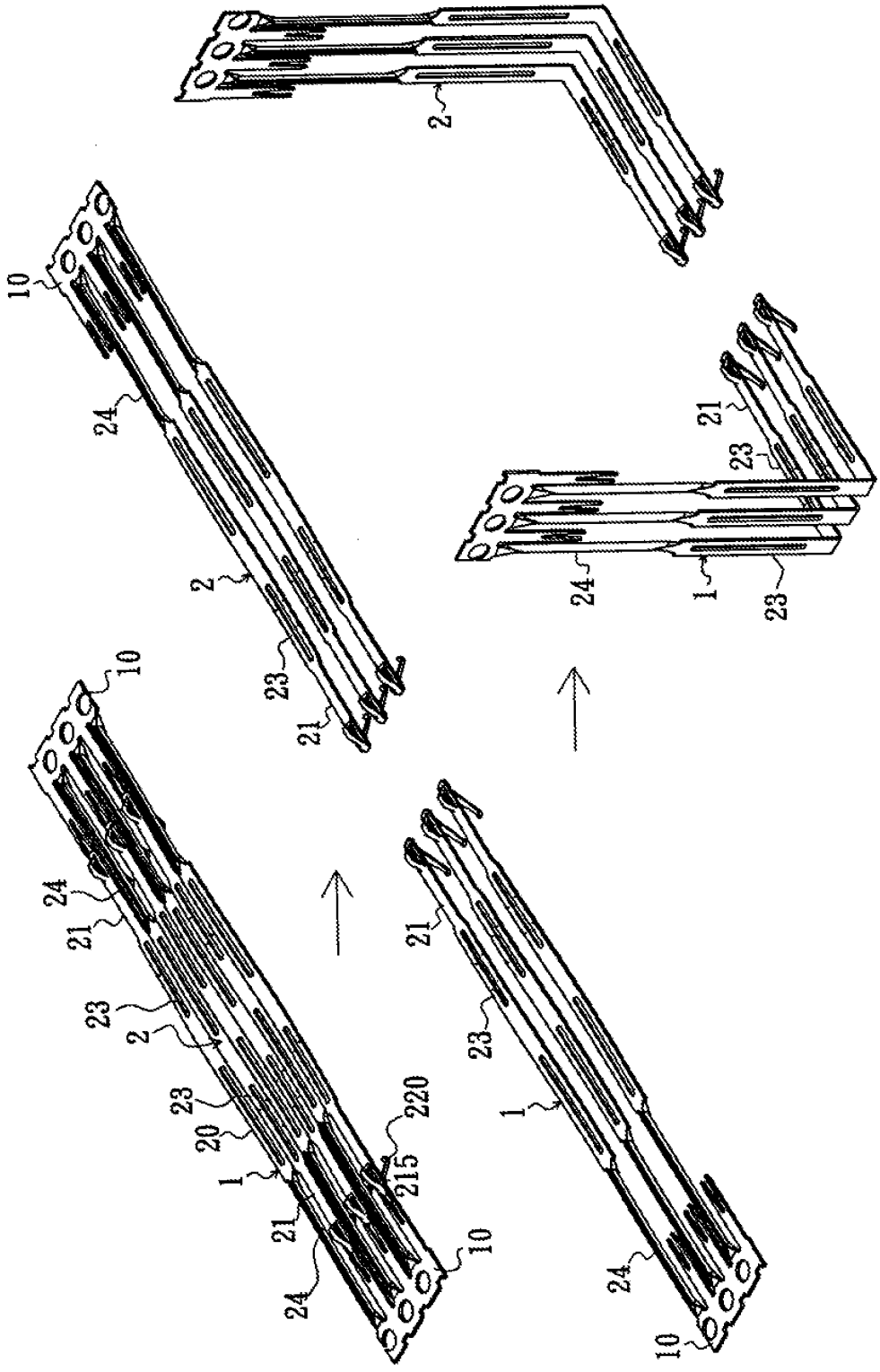


图 46

Samsung, EX1019, p. 488

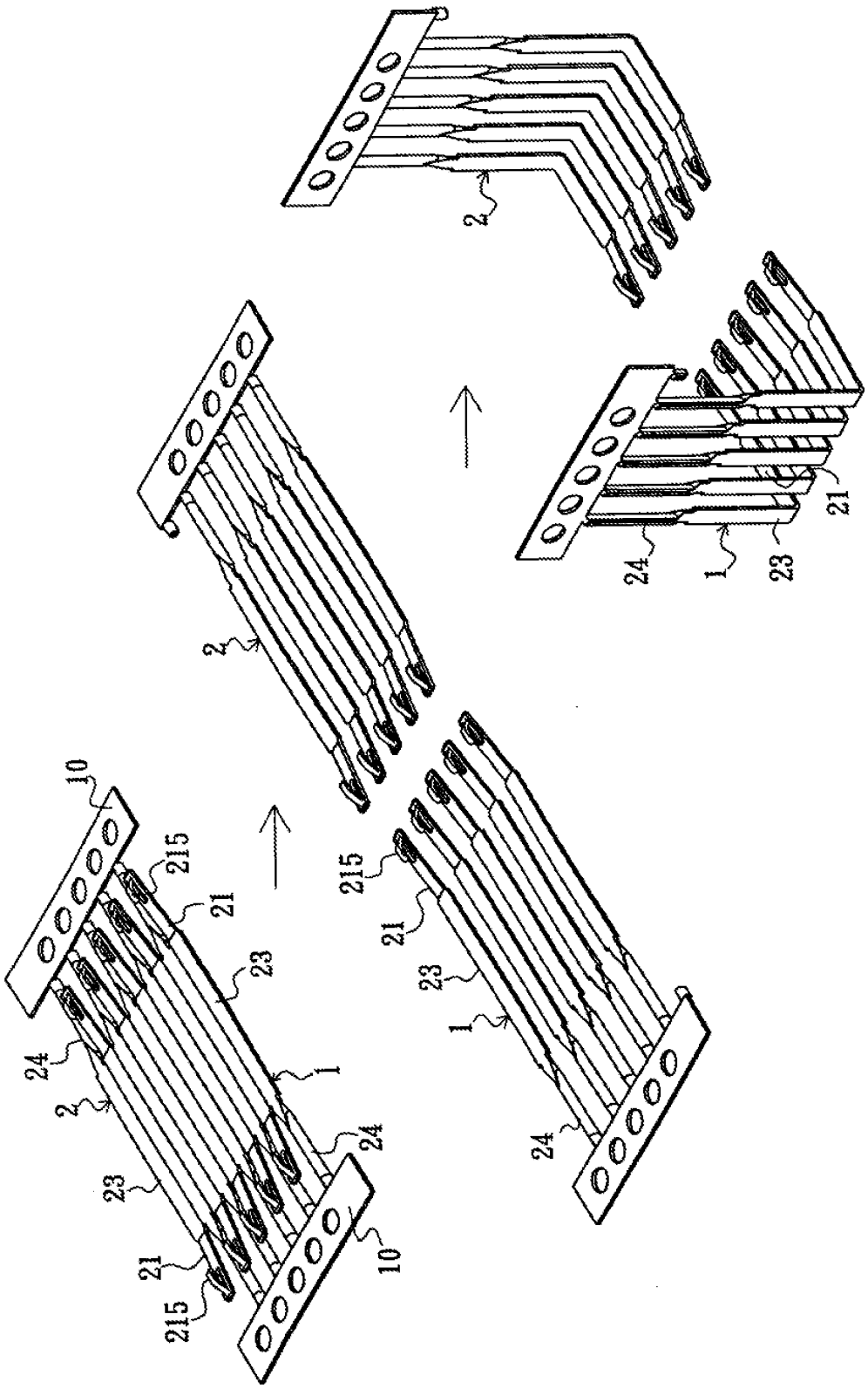


图 47

Samsung, EX1019, p. 489

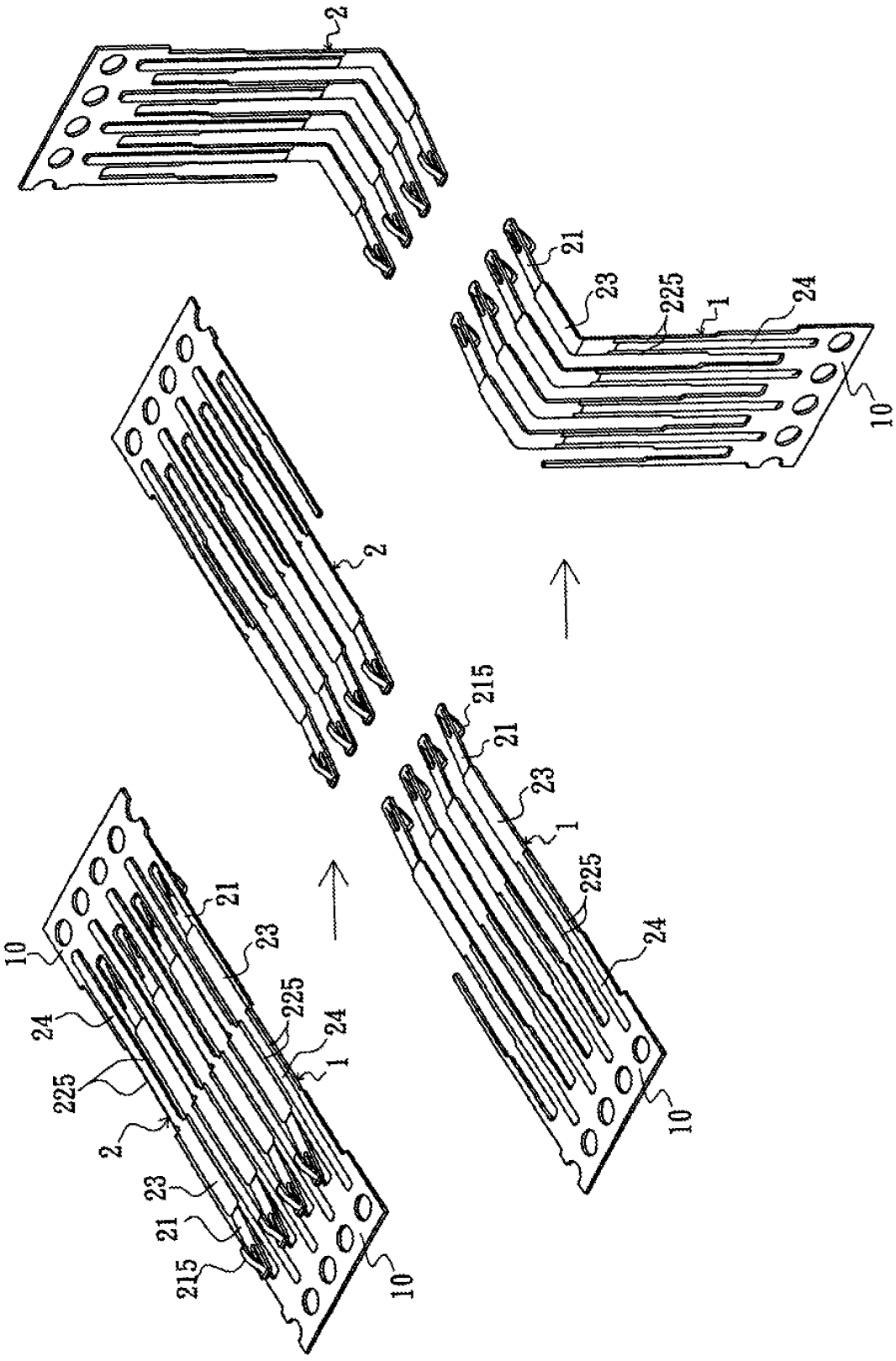


图 48

Samsung, EX1019, p. 490

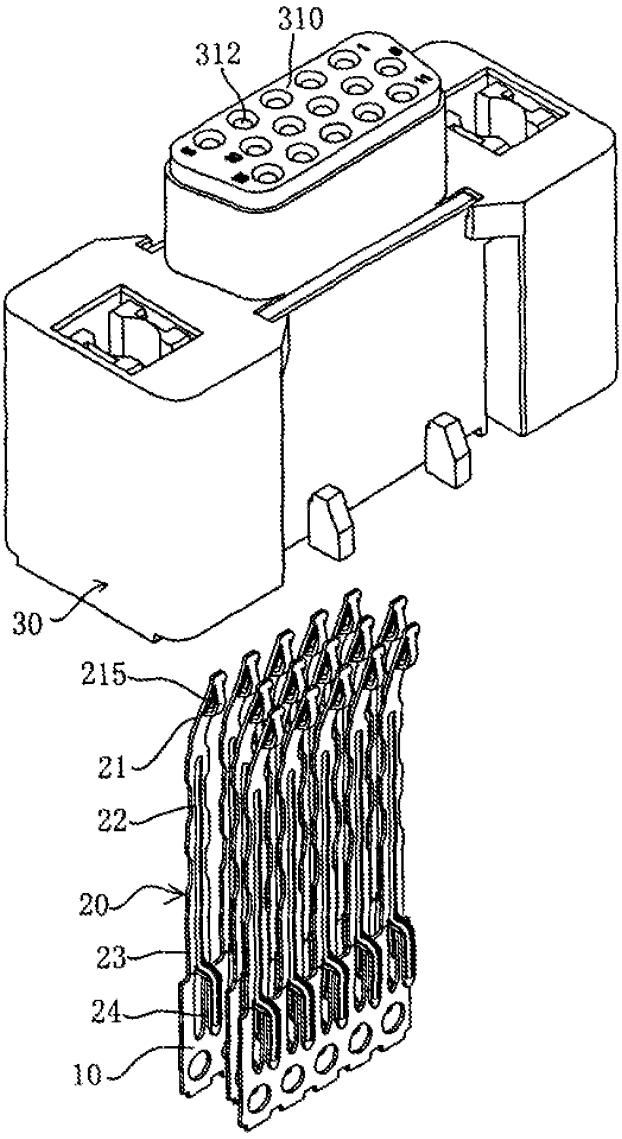


图 49

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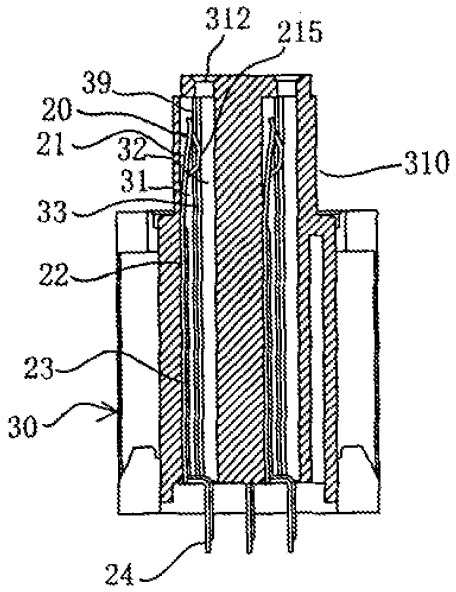


图 50

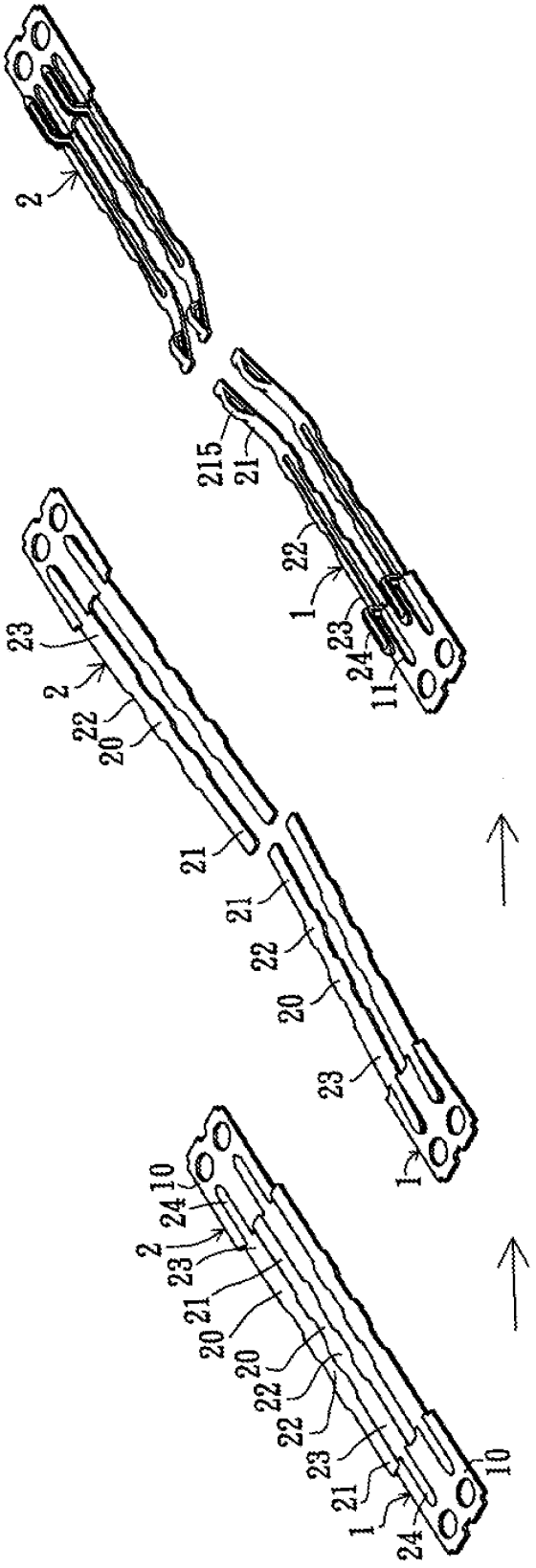


图 51

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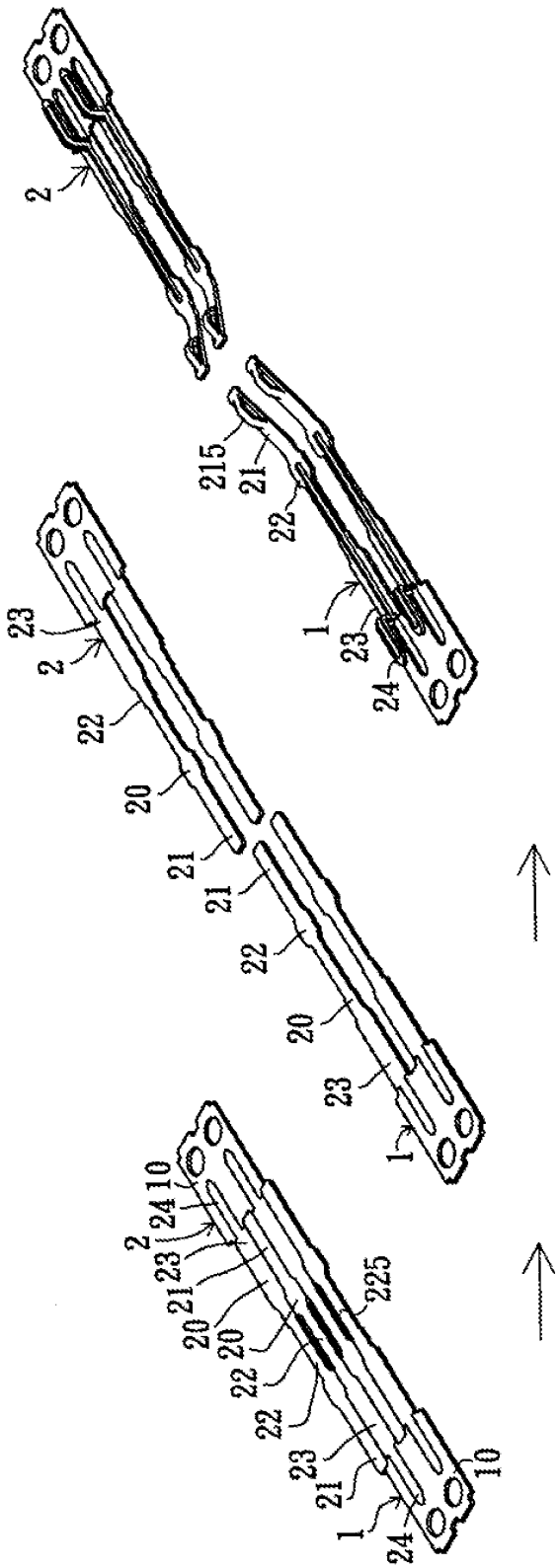


图 52

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Espacenet

CN201663254U Sharable socket structure

Applicants: ZHOUXIAN CAI

Inventors: ZHOUXIAN CAI

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Sharable socket structure

Abstract

The utility model discloses a sharable socket structure, which comprises a socket body, a tongue piece, a row of first contact parts, a row of second contact parts, and a row of third contact parts. The sharable socket structure is characterized in that: the socket body is provided with a shared slot with at least two first slots and second slots of different widths and heights, the shared slot can contain at least two joints of different widths and heights, and the first slot and the second slot are provided with shared space; the tongue piece is fixed in the socket body and extends to the shared slot; the row of first contact parts are arranged on one surface of the tongue piece at intervals and are protruded from the surface, and the first contact parts can the joint can spring up and down when the joint is inserted into the shared slot to be contacted with the first contact parts; the row of second contact parts are arranged on one surface of the tongue piece at intervals and are located at the same plane with the first contact parts, and the second contact parts can the joint can spring up and down when the joint is inserted into the shared slot to be contacted with the second contact parts; the row of third contact parts are arranged on one surface of the tongue piece and are located at the same plane with the first contact parts, and the third contact parts can the joint can spring up and down when the joint is inserted into the shared slot to be contacted with the third contact parts. The first contact parts, the second contact parts and the third contact parts are staggered at the Y coordinate in front/rear directions of the tongue piece and is overlapped at the X coordinate in left/right directions of the tongue piece.

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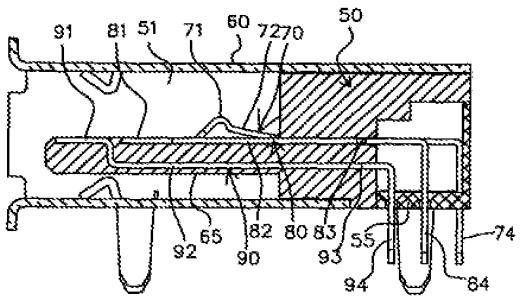
权利要求书 2 页 说明书 7 页 附图 7 页

(54)实用新型名称

可共用的插座构造

(57)摘要

一种可共用的插座构造，包括：座体，设有共用槽，共用槽设有至少二不同宽度或高度的第一、第二插槽，可容纳至少二不同宽度或高度的接头，第一、第二插槽具有共用空间；舌片固定于该座体且延伸于共用槽内；一排第一接触部，间隔排列且凸出该舌片一面，接头插入共用槽接触第一接触部时第一接触部可上下弹动；一排第二接触部，间隔排列设于舌片一面且与第一接触部同面，接头插入共用槽接触第二接触部时第二接触部不可上下弹动；一排第三接触部，间隔排列设于该舌片一面且与第一接触部同面，接头插入共用槽接触第三接触部时第三接触部不可上下弹动，该第一、第二、第三接触部在舌片的前后方向Y座标错开且在舌片的左右方向X座标重叠。



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1. 一种可共用的插座构造，其特征在于：包括有：

一座体，设有一共用槽，该共用槽设有至少二不同宽度或高度的第一插槽和第二插槽，能够容纳至少二不同宽度或高度的接头，第一插槽和第二插槽具有共用空间；

一舌片，固定于该座体且延伸于该共用槽内；

一排第一接触部，其是间隔排列且凸出该舌片一面，当一接头插入该共用槽接触该第一接触部时该第一接触部能够上下弹动；

一排第二接触部，其是间隔排列设于该舌片一面且与该一排第一接触部同面，当一接头插入该共用槽接触该第二接触部时该第二接触部不可上下弹动；及

一排第三接触部，其是间隔排列设于该舌片一面且与该一排第一接触部同面，当一接头插入该共用槽接触该第三接触部时该第三接触部不可上下弹动，该一排第一接触部、一排第二接触部及一排第三接触部在该舌片的前后方向的 Y 座标皆错开且在该舌片的左右方向的 X 座标有重叠。

2. 如权利要求 1 所述的可共用的插座构造，其特征在于：该座体包括有一塑胶座体及一金属外壳，该一排第一接触部是形成在一排第一端子上，该第一端子一体设有该第一接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，延伸部延伸位于该共用槽并能够上下弹动，该第一接触部连接于该延伸部前段并凸出该舌片一面，该接脚伸出该塑胶座体外。

3. 如权利要求 2 所述的可共用的插座构造，其特征在于：该一排第二接触部是形成在一排第二端子上，该第二端子一体设有该第二接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，该延伸部于该舌片延伸，该第二接触部连接于该延伸部前段，该接脚伸出该塑胶座体外；该一排第三接触部是形成在一排第三端子上，该第三端子一体设有该第三接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，该延伸部于该舌片延伸，该第三接触部连接于该延伸部前段，该接脚伸出该塑胶座体外。

4. 如权利要求 2 所述的可共用的插座构造，其特征在于：该一排第二接触部及一排第三接触部是形成在一排第二端子上，该第二端子一体设有该第二接触部、该第三接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，延伸部于该舌片延伸，该第二、三接触部连接于该延伸部前段，该接脚伸出该塑胶座体外。

5. 如权利要求 4 所述的可共用的插座构造，其特征在于：该一排第一端子的固定部与一排第二端子的固定部的高度不同，分别位于该舌片不同侧。

6. 如权利要求 3 所述的可共用的插座构造，其特征在于：该一排第一端子的固定部与一排第二端子的固定部等高位于该舌片同侧，该一排第三端子的固定部与一排第二端子的固定部的高度不同，分别位于该舌片不同侧。

7. 如权利要求 2 所述的可共用的插座构造，其特征在于：该舌片为一电路板，且还设有一排第一接脚及一排第二接脚，该舌片设有多条第一电路、多条第二电路、该一排第二接触部及该一排第三接触部，每一第一电路电连接该一第二接触部且于该舌片后段设一第一接点，每一第二电路电连接该一第三接触部且于舌片后段设一第二接点，每一第一接脚设有一固定部与该一第一电路电连接及一接脚伸出塑胶座体外，每一第二接脚设有一固定部与该一第二电路电连接及一接脚伸出塑胶座体外。

8. 如权利要求 2 所述的可共用的插座构造，其特征在于：该舌片为一电路板，且还设有

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一排第一接脚，该舌片设有多条第一电路、该一排第二接触部及该一排第三接触部，每一第一电路电连接该一第二接触部且于该舌片后段设一第一接点，每一第三接触部电连接于一第一电路，每一第一接脚设有一固定部与该一第一电路电连接及一接脚伸出塑胶座体外。

9. 如权利要求 7 所述的可共用的插座构造，其特征在于：该第一、二接脚的固定部分别设于该舌片二面。

10. 如权利要求 8 所述的可共用的插座构造，其特征在于：该第一接脚的固定部与第一端子的固定部设于该舌片同一面。

11. 如权利要求 8 所述的可共用的插座构造，其特征在于：该第一接脚的固定部与第一端子的固定部设于该舌片不同面。

12. 如权利要求 1 所述的可共用的插座构造，其特征在于：该第二插槽的高度较第一插槽为小且宽度较第一插槽为大，该第一插槽容纳一 USB3.0 接头，该第二插槽容纳一 eSATA 接头，该 USB3.0 接头插入该第一插槽时与该一排第一接触部及一排第三接触部电连接，该 eSATA 接头插入该第二插槽时与该一排第二接触部电连接。

13. 如权利要求 12 所述的可共用的插座构造，其特征在于：该一排第一接触部共有 4 个，该一排第二接触部共有 7 个、该一排第三接触部共有 5 个，该第三接触部位于第二接触部前方，该第二接触部位于第一接触部前方。

14. 如权利要求 1 所述的可共用的插座构造，其特征在于：该塑胶座体还堆叠设有至少另一共用槽，该共用槽可连接两种不同接头。

15. 如权利要求 1 所述的可共用的插座构造，其特征在于：该塑胶座体还堆叠设有至少一连接单一接头的连接槽。

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可共用的插座构造

【技术领域】

[0001] 本实用新型是有关于一种电连接器，特别是关于一种可共用的插座构造。

【背景技术】

[0002] 现今电脑设最普及的讯号传输规格莫过于通用串行总线 (UniversalSerial Bus，简称 USB)，以此规格制作的连接器插座及传输线可使外接于电脑的周边设备，如滑鼠、键盘等，即时为电脑所测得并立即使用。

[0003] 为了满足高流量资料传输的需求，目前有另一种随插即用的传输规格，序列先进附加技术 (External Serial ATA，简称 eSATA)，此规格传输值较 USB 为大。

[0004] 上述 USB 和 eSATA 的介面并不相容，惟两种所属的插座颇为类似然而无法共用。

[0005] 请参阅图 1，为一种现有的讯号线连接器，其是包括有一塑胶座体 10、四个第一端子 20、七个第二端子 25 及一金属外壳 30，其中：

[0006] 该塑胶座体 10 是设有一 USB 接头插槽 11 及一 eSATA 接头插槽 15，该 USB 接头插槽 11 内设有一舌片 12，该 eSATA 接头插槽 15 内设有一舌片 16。

[0007] 该第一端子 20 固定于该塑胶座体 10，其设有一可上下弹动的接触部 21 及一接脚 22，该接触部 21 位于该 USB 接头插槽 11 内并凸出该舌片 12 下方，该接脚 22 伸出塑胶座体 10 下方借以连接至一电路板 35。

[0008] 该第二端子 25 固定于该塑胶座体 10，其设有一不可弹动的接触部 26 及一接脚 27，该接触部 26 位于该 eSATA 接头插槽 15 内并凸出该舌片 16 上方，该接脚 22 伸出塑胶座体 10 下方借以连接至一电路板 35。

[0009] 该金属外壳体 30 是包覆在该塑胶座体的四周面及顶面，其一面设有开孔 31、32，借以令 USB 接头插槽 11 及 eSATA 接头插槽 15 露出。

[0010] 请参阅图 2，是为一 USB 接头，其为 USB2.0 规格者，该 USB-2.0 接头 40 成方形，其设有一塑胶体 41、一外铁壳 42、及四个端子接点 43，外铁壳 42 包覆塑胶体 41 后其内形成有空间 44，斜线区域为示意塑胶体 41，该四个端子接点 43 不具弹性且露出该空间 44，请配合参阅图 1，该 USB-2.0 接头 40 的空间 44 对应 USB 接头插槽 11 的舌片 12 插入作电连接，此时其端子接点 43 即与第一端子 20 的接触部 21 弹性接触。

[0011] 请参阅图 3，是为一 eSATA 接头 45，其大致成方形而两侧略为凸出，其设有一塑胶体 46、一外铁壳 47、及七个端子接点 48，该塑胶体 46 中间形成有空间 49，斜线区域为示意塑胶体 46，该七个端子接点 48 具有上下弹动的弹性且露出该空间 49，请配合参阅图 1，该 eSATA 接头 45 的空间 49 对应 eSATA 接头插槽 15 的舌片 16 插入作电连接，此时其端子接点 48 即与第二端子 25 的接触部 26 弹性接触。

[0012] 上述现有的讯号线连接器上所设有 USB 接头插槽 11 仅能限定插入 USB 接头，而 ESATA 接头插槽 15 则仅能限定插入 eSATA 接头，即任一插槽没有共用功能，然而由于目前电脑的功能需求日益增强，依使用者不同需求，电脑上可能只需连接上 4 条 USB 接头的讯号线而不需连接 eSATA 接头的讯号线，亦有可能不需连接 USB 接头的讯号线而需连接 4 条 eSATA

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接头的讯号线，如此电脑为配合使用者的不同需求，则必需分别各设置有 4 个 USB 接头插槽及 4 个 eSATA 接头插槽，如此相当占用空间且增加成本。

[0013] 为了使用上的方便性，目前已有人设计 USB 接头的讯号线和 eSATA 接头的讯号线的共用插座，然而由于 USB 接头的接点和 eSATA 接头的接点在端子依序排列方向的 X 座标形成部份重叠，故共用插座的端子在设置并不容易。

[0014] 再者，为了缩短传输时间，目前的 USB 接头已发展至 USB3.0，USB3.0 接头的连接介面较 USB2.0 接头多出一排端子，故传输速度更快，如此若要整合 USB3.0 接头和 eSATA 接头共用，则该共用插座需设计有三排端子，如此增加制造上的困难度。

【实用新型内容】

[0015] 本实用新型的主要目的在于提供一种可共用的插座构造，其是设有三排同面的接触部，借以可供二种不同规格的接头插入共用。

[0016] 本实用新型的次要目的在于提供一种可共用的插座构造，其是设有三排同面的接触部，借以可供 USB3.0 接头及 eSATA 接头插入共用。

[0017] 本实用新型的次要目的在于提供一种可共用的插座构造，其是设有三排同面的接触部，且三排接触部是由各自独立的端子构成。

[0018] 本实用新型的次要目的在于提供一种可共用的插座构造，其可达到二排端子具有三排同面的接触部，且该二排端子的固定部在舌片的不同侧。

[0019] 本实用新型的次要目的在于提供一种可共用的插座构造，其借由一排端子及在舌片上设有电路达到在舌片的同面设有三排接触部。

[0020] 为达上述目的，本实用新型可共用的插座构造包括有：一座体，其设有一共用槽，该共用槽设有至少二不同宽度或高度的第一插槽和第二插槽，可容纳至少二不同宽度或高度的接头，第一插槽和第二插槽具有共用空间；一舌片，其固定于该座体且延伸于该共用槽内；一排第一接触部，其是间隔排列且凸出该舌片一面，当一接头插入该共用槽接触该第一接触部时该第一接触部可上下弹动；一排第二接触部，其是间隔排列设于该舌片一面且与该一排第一接触部同面，当一接头插入该共用槽接触该第二接触部时该第二接触部不可上下弹动；及一排第三接触部，其是间隔排列设于该舌片一面且与该一排第一接触部同面，当一接头插入该共用槽接触该第三接触部时该第三接触部不可上下弹动，该一排第一接触部、一排第二接触部及一排第三接触部在该舌片的前后方向的 Y 座标皆错开且在该舌片的左右方向的 X 座标有重叠。

[0021] 承接上述，本实用新型提供一种可共用的插座构造，其特征在于：包括有：

[0022] 一座体，设有一共用槽，该共用槽设有至少二不同宽度或高度的第一插槽和第二插槽，能够容纳至少二不同宽度或高度的接头，第一插槽和第二插槽具有共用空间；

[0023] 一舌片，固定于该座体且延伸于该共用槽内；

[0024] 一排第一接触部，其是间隔排列且凸出该舌片一面，当一接头插入该共用槽接触该第一接触部时该第一接触部能够上下弹动；

[0025] 一排第二接触部，其是间隔排列设于该舌片一面且与该一排第一接触部同面，当一接头插入该共用槽接触该第二接触部时该第二接触部不可上下弹动；及

[0026] 一排第三接触部，其是间隔排列设于该舌片一面且与该一排第一接触部同面，当

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一接头插入该共用槽接触该第三接触部时该第三接触部不可上下弹动，该一排第一接触部、一排第二接触部及一排第三接触部在该舌片的前后方向的 Y 座标皆错开且在该舌片的左右方向的 X 座标有重叠。

[0027] 所述的可共用的插座构造，其特征在于：该座体包括有一塑胶座体及一金属外壳，该一排第一接触部是形成在一排第一端子上，该第一端子一体设有该第一接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，延伸部延伸位于该共用槽并能够上下弹动，该第一接触部连接于该延伸部前段并凸出该舌片一面，该接脚伸出该塑胶座体外。

[0028] 所述的可共用的插座构造，其特征在于：该一排第二接触部是形成在一排第二端子上，该第二端子一体设有该第二接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，该延伸部于该舌片延伸，该第二接触部连接于该延伸部前段，该接脚伸出该塑胶座体外；该一排第三接触部是形成在一排第三端子上，该第三端子一体设有该第三接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，该延伸部于该舌片延伸，该第三接触部连接于该延伸部前段，该接脚伸出该塑胶座体外。

[0029] 所述的可共用的插座构造，其特征在于：该一排第二接触部及一排第三接触部是形成在一排第二端子上，该第二端子一体设有该第二接触部、该第三接触部、一延伸部、一固定部及一接脚，该固定部与该塑胶座体固定，延伸部于该舌片延伸，该第二、三接触部连接于该延伸部前段，该接脚伸出该塑胶座体外。

[0030] 所述的可共用的插座构造，其特征在于：该一排第一端子的固定部与一排第二端子的固定部的高度不同，分别位于该舌片不同侧。

[0031] 所述的可共用的插座构造，其特征在于：该一排第一端子的固定部与一排第二端子的固定部等高位于该舌片同侧，该一排第三端子的固定部与一排第二端子的固定部的高度不同，分别位于该舌片不同侧。

[0032] 所述的可共用的插座构造，其特征在于：该舌片为一电路板，且还设有一排第一接脚及一排第二接脚，该舌片设有多条第一电路、多条第二电路、该一排第二接触部及该一排第三接触部，每一第一电路电连接该一第二接触部且于该舌片后段设一第一接点，每一第二电路电连接该一第三接触部且于舌片后段设一第二接点，每一第一接脚设有一固定部与该一第一电路电连接及一接脚伸出塑胶座体外，每一第二接脚设有一固定部与该一第二电路电连接及一接脚伸出塑胶座体外。

[0033] 所述的可共用的插座构造，其特征在于：该舌片为一电路板，且还设有一排第一接脚，该舌片设有多条第一电路、该一排第二接触部及该一排第三接触部，每一第一电路电连接该一第二接触部且于该舌片后段设一第一接点，每一第三接触部电连接于一第一电路，每一第一接脚设有一固定部与该一第一电路电连接及一接脚伸出塑胶座体外。

[0034] 所述的可共用的插座构造，其特征在于：该第一、二接脚的固定部分别设于该舌片二面。

[0035] 所述的可共用的插座构造，其特征在于：该第一接脚的固定部与第一端子的固定部设于该舌片同一面。

[0036] 所述的可共用的插座构造，其特征在于：该第一接脚的固定部与第一端子的固定部设于该舌片不同面。

[0037] 所述的可共用的插座构造，其特征在于：该第二插槽的高度较第一插槽为小且

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宽度较第一插槽为大，该第一插槽容纳一 USB3.0 接头，该第二插槽容纳一 eSATA 接头，该 USB3.0 接头插入该第一插槽时与该一排第一接触部及一排第三接触部电连接，该 eSATA 接头插入该第二插槽时与该一排第二接触部电连接。

[0038] 所述的可共用的插座构造，其特征在于：该一排第一接触部共有 4 个，该一排第二接触部共有 7 个、该一排第三接触部共有 5 个，该第三接触部位于第二接触部前方，该第二接触部位于第一接触部前方。

[0039] 所述的可共用的插座构造，其特征在于：该塑胶座体还堆叠设有至少另一共用槽，该共用槽可连接两种不同接头。

[0040] 所述的可共用的插座构造，其特征在于：该塑胶座体还堆叠设有至少一连接单一接头的连接槽。

[0041] 综上所述，本实用新型的有益效果在于：本实用新型的可共用的插座构造，其设有三排同面的接触部，借以可供二种不同规格的接头插入共用。

[0042] 本实用新型的上述及其他目的、优点和特色由以下较佳实施例的详细说明中并参考图式当可更加明白。

【附图说明】

[0043] 图 1 是现有的讯号线连接器的前视图。

[0044] 图 2 是现有 USB 接头前视示意图。

[0045] 图 3 是现有 eSATA 接头前视示意图。

[0046] 图 4 是本实用新型第一实施例的侧视剖面图。

[0047] 图 5 是本实用新型第一实施例的前视图。

[0048] 图 6 是本实用新型第一实施例的端子立体图。

[0049] 图 7 是本实用新型第二实施例的端子立体图。

[0050] 图 8 是本实用新型第三实施例的侧视剖面图。

[0051] 图 9 是本实用新型第三实施例的舌片上视图。

[0052] 图 10 是本实用新型第四实施例的侧视剖面图。

[0053] 图 11 是本实用新型第四实施例的舌片上视图。

[0054] 图 12 是本实用新型第五实施例的侧视剖面图。

[0055] 图 13 是本实用新型第五实施例的舌片上视图。

[0056] 图 14 是本实用新型第六实施例的端子立体图。

[0057] 图 15 是本实用新型第七实施例的端子立体图。

[0058] 图 16 是本实用新型第八实施例的端子立体图。

[0059] USB 接头 40　接点 43　eSATA 接头 45　端子接点 48

[0060] 塑胶座体 50　共用槽 51　第一插槽 52　第二插槽 53

[0061] 后盖 55　连接槽 56　共用槽 57　斜边 58

[0062] 金属外壳 60　舌片 65　舌片 61　舌片 62

[0063] 焊垫 63　第一电路 64　第一接点 66　开孔 67

[0064] 导电孔 68　第二电路 69　第二接点 610　端子 612

[0065] 第一端子 70　第一接触部 71　延伸部 72 固定部 73　接脚 74

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[0066]	第二端子 80	第二接触部 81	延伸部 82 固定部 83	接脚 84
[0067]	第三端子 80	第三接触部 91	延伸部 92 固定部 93	接脚 94
[0068]	第一接脚 100	固定部 101	接脚 102	
[0069]	第二接脚 105	固定部 106	接脚 107	

【具体实施方式】

[0070] 请参阅图 4、图 5、及图 6，为本实用新型第一实施例，其包括一塑胶座体 50、一舌片 65、一排第一端子 70、一排第二端子 80、一排第三端子 90 及一金属外壳 60，其中：

[0071] 该座体包括有一塑胶座体 50 及一金属外壳 60，该座体内设有一共用槽 51，其前端为该共用槽 51 的插入口，该共用槽 51 设有至少二不同宽度或高度的第一插槽 52 和第二插槽，该第二插槽 53 的高度较第一插槽 52 为小且宽度较第一插槽 52 为大，该第一插槽 52 可容纳 USB 公头，本实施例可连接 USB2.0 接头及 USB3.0 接头，该第二插槽可容纳 eSATA 接头，另外该塑胶座体 50 后端下方组合一后盖 55。

[0072] 该舌片 65 一体成型设于该塑胶座体 50 的前端且延伸于该共用槽 51 内。

[0073] 该一排第一端子 70 共有 4 个，该第一端子一体设有一第一接触部 71、一延伸部 72、一固定部 73 及一接脚 74，该固定部 73 与该塑胶座体 50 固定，该一排第一端子 70 的固定部 73 与该一排第二端子 80 的固定部 83 等高位于该舌片 65 同侧，该延伸部 72 延伸位于该共用槽并可上下弹动，该第一接触部 71 连接于该延伸部 72 前段并弯曲凸出该舌片 65 上面，该接脚 74 伸出该塑胶座体 50 外。

[0074] 该一排第二端子 80 共 7 个，该第二端子 80 一体设有一第二接触部 81、一延伸部 82、一固定部 83 及一接脚 84，该固定部 83 与该塑胶座体 50 固定，该延伸部 82 平贴于该舌片上面，该第二接触部 81 连接于该延伸部 82 前段，该接脚 84 伸出该塑胶座体 50 外，该第二接触部 81 位于该第一接触部 71 前方且两者皆在舌片 65 上面。

[0075] 该一排第三端子 90 共有 7 个，该第三端子 90 一体设有该第三接触部 91、一延伸部 92、一固定部 93 及一接脚 94，该固定部 92 与该塑胶座体 50 固定且与第一、二端子的固定部 73、83 在舌片 65 的不同侧而呈一高度差，该延伸部 92 位于该舌片下段向前延伸，该第三接触部 91 连接于该延伸部 92 前段，该接脚 94 伸出该塑胶座体 50 外，该第三接触部 91 位于该第二接触部 81 前方且两者皆在舌片 65 上面。

[0076] 该一排第一接触部 71、一排第二接触部 81 及一排第三接触部 91 在该舌片 65 的前后方向的 Y 座标皆错开且在该舌片 65 的左右方向的 X 座标有重叠。

[0077] 当 USB3.0 接头插入该第一插槽 52 时与该一排第一接触部 71 及一排第三接触部 91 电连接，该第一接触部 71 可上下弹动而该第三接触部 91 平贴舌片 65 不会上下弹动；当 eSATA 接头插入该第二插槽 53 时与该一排第二接触部 82 电连接，该第二接触部 81 平贴舌片 65 不会上下弹动。

[0078] 由以上说明，本实用新型可达到在舌片的同面设置 Y 座标位置不同且 X 座标有重叠的三排接点。

[0079] 请参阅图 7，是本实用新型第二实施例，其大致与第一实施例相同，其差异在于本实施例的一排第一端子 70 的固定部 73 与一排第二端子 80 的固定部 83 呈一高度差固定于该塑胶座体 50，使位在该舌片 65 的不同侧，如此第一、二端子 80 不致因过于接近而造成电

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气干扰，另外其中 5 支第二端子 80 更一体设有一第三接触部 91 位于第二接触部 81 前方。

[0080] 请参阅图 8 及图 9，是为本实用新型第三实施例，其大致与第一实施例相同，其差异在于本实施例的舌片 65 为一电路板，且更设有一排第一接脚 100，该舌片 65 组装固定于该塑胶座体 50 并延伸于该共用槽 51，该舌片 65 上面设有 7 条第一电路 64、一排 7 个第二接触部 81 及一排 5 个第三接触部 91，每一第一电路 64 电连接该一第二接触部 81 且于该舌片后段设一第一接点 66，每一第三接触部 91 电连接于一第一电路 64，每一第一接脚 100 设有一固定部 101 与一第一电路 64 电连接及一接脚 102 伸出塑胶座体 50 外，另外该舌片 65 上对应该一排第一端子 70 设有一排四个长条形的开孔 67，每一开孔 67 后端的舌片上面设有一焊垫 63，该第一接脚 100 的固定部 101 焊接于该第一接点 66，该第一端子 70 的固定部 73 焊接于焊垫 63。

[0081] 该第三接触部 91 位于该第二接触部 81 前方，该第二接触部 71 位于该第一接触部 71 前方，且三排接触部均位于舌片 65 上面。

[0082] 请参阅图 10 及图 11，是为本实用新型第四实施例，其大致与第三实施例相同，其差异在于本实施例的 7 条第一电路 64 及 7 个第一接点 66 是设于舌片 65 的下面，该第一电路 64 再借由导电孔 68 电连接舌片 65 上面的该第二接触部 81 及第三接触部 91，如此第一接脚 100 的固定部 101 与第一端子 70 的固定部 73 分别位于舌片 65 的不同侧，较不会有电气干扰。

[0083] 请参阅图 12 及图 13，是为本实用新型第五实施例，其大致与第三实施例相同，其差异在于本实施例于舌片 65 下面更设有 7 条第二电路 69 及 7 个第二接点 610，且设有一排第二接脚 105，每一第二接点 610 设于舌片 65 后端并电连一第二电路 69，该第二接脚 105 设有一固定部 106 焊接该第二电路 64 及一接脚 107 伸出塑胶座体 50 外，每一第二电路 69 再借由导电孔 68 电连接舌片 65 上面的一第三接触部 91。

[0084] 本实施例的一排 7 个第二接触部 81 及一排 5 个第三接触部 91 皆有独立接脚伸出塑胶座体 50 外，而前述第三、四实施例则皆为共用接脚。

[0085] 请参阅图 14，是本实用新型第六实施例，其大致与第一实施例相同，其差异在于本实施例为双层 eSATA 接头及 USB 接头的共用插座，该塑胶座体 50 设有二堆叠的共用槽 51，该金属外壳 60 包覆该塑胶座体 50 且设有对应该二共用槽 51 的开口，该共用槽 51 的舌片 65 上面同样设有一排第一接触部 71、一排第二接触部 81 及一排第三接触部 91。

[0086] 请参阅图 15，是本实用新型第七实施例，其大致与第六实施例相同，其差异在于本实施例为 eSATA 接头及 USB 接头的共用插座堆叠一高清晰度多媒体介面 (High Definition Multimedia Interface，简称 HDMI) 插座，该塑胶座体 50 的共用槽 51 上方堆叠一 HDMI 接头的连接槽 56，该连接槽 56 下端较上端为窄且两侧形成二斜边 58，该连接槽 56 内设有一舌片 61，该舌片 61 排设有电连接 HDMI 接头的端子 62。

[0087] 请参阅图 16，是本实用新型第八实施例，其大致与第六实施例相同，其差异在于本实施例为 eSATA 接头及 USB 接头的共用插座堆叠一 HDMI 接头和 Display port 接头的共用插座，该塑胶座体 50 的共用槽 51 上方堆叠一 HDMI 接头和 Display port 接头的共用槽 57，该共用槽 57 下端较上端为窄且仅一侧形成一斜边 58，该连接槽 57 内设有一舌片 63，该舌片 63 排设有电连接 HDMI 接头及 Display port 接头的端子 63。

[0088] 上述的堆叠设计皆为双层，然而依本实用新型的构造特点亦可堆叠三层或更多

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层，另外亦可堆叠其他型式的插座，如 1394 插座或是各类型电话插座等。

[0089] 在较佳实施例的详细说明中所提出的具体的实施例仅为了易于说明本实用新型的技术内容，而并非将本实用新型狭义地限制于该实施例，在不超出本实用新型的精神及申请专利范围的情况，可作种种变化实施。

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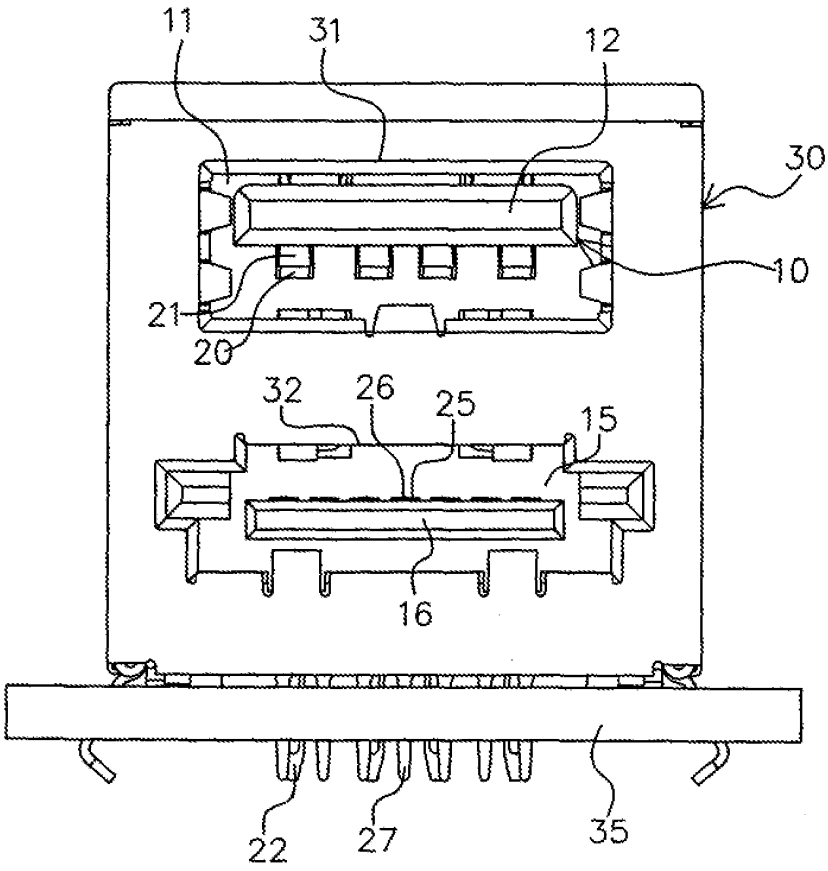


图 1

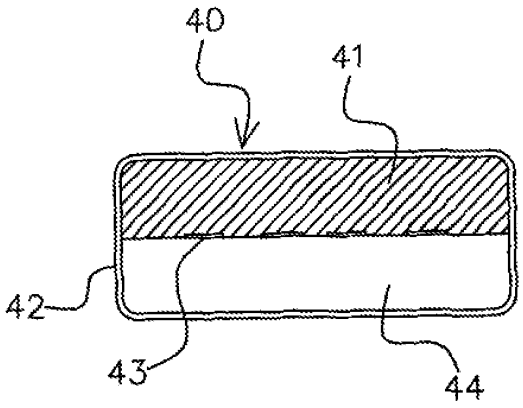


图 2

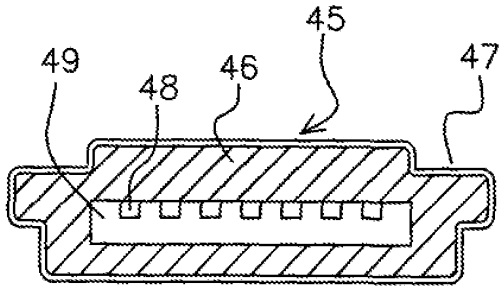


图 3

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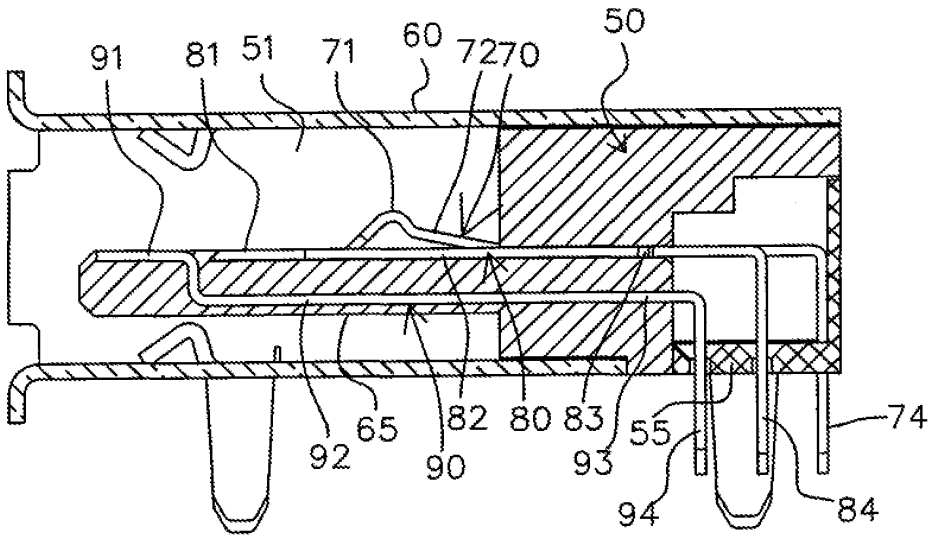


图 4

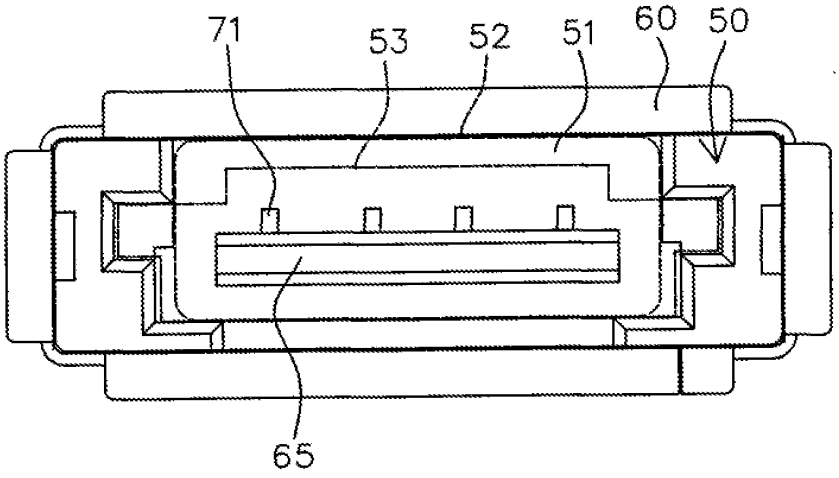


图 5

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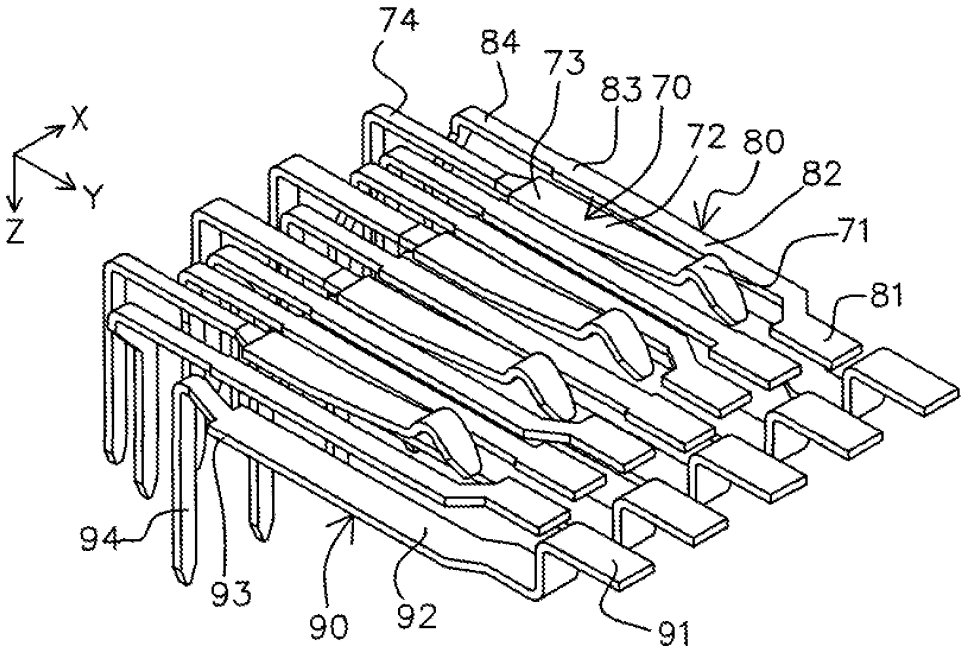


图 6

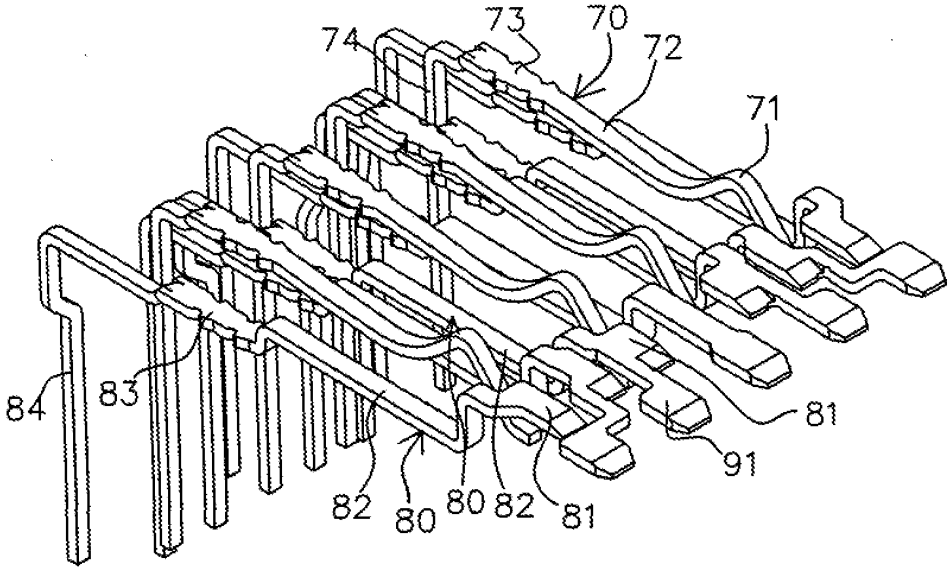


图 7

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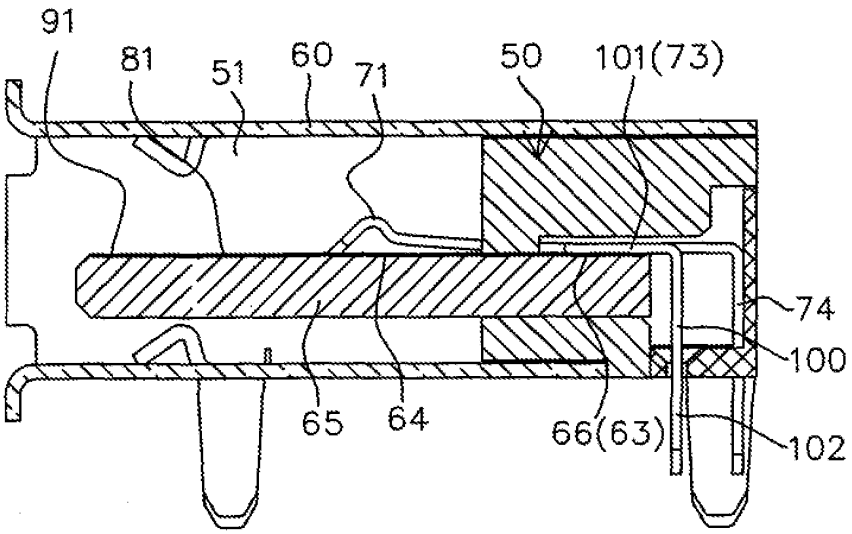


图 8

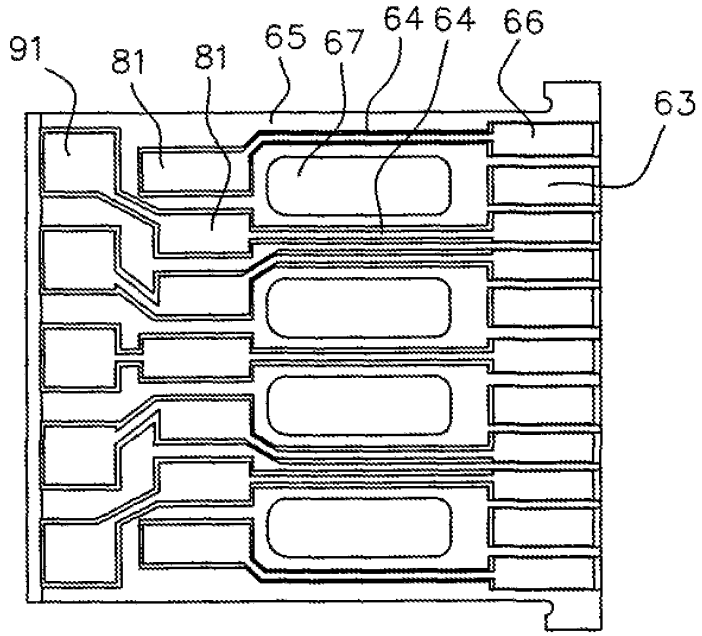


图 9

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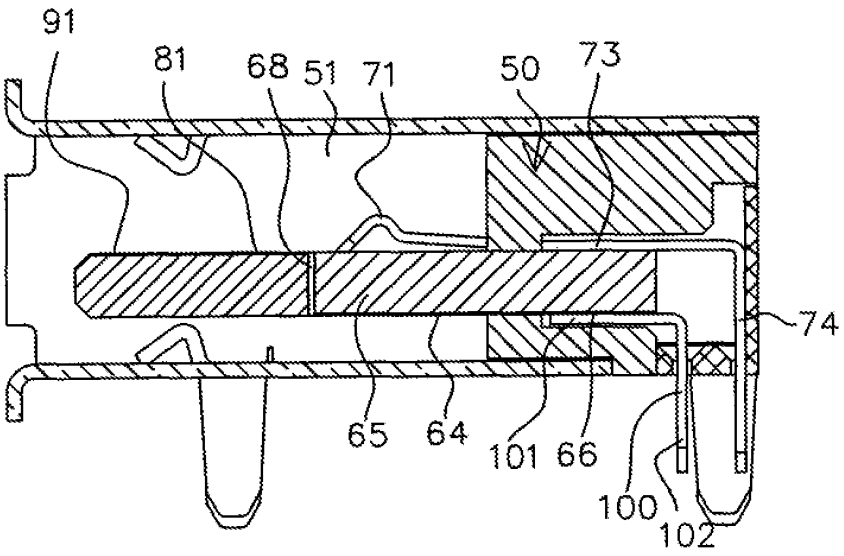


图 10

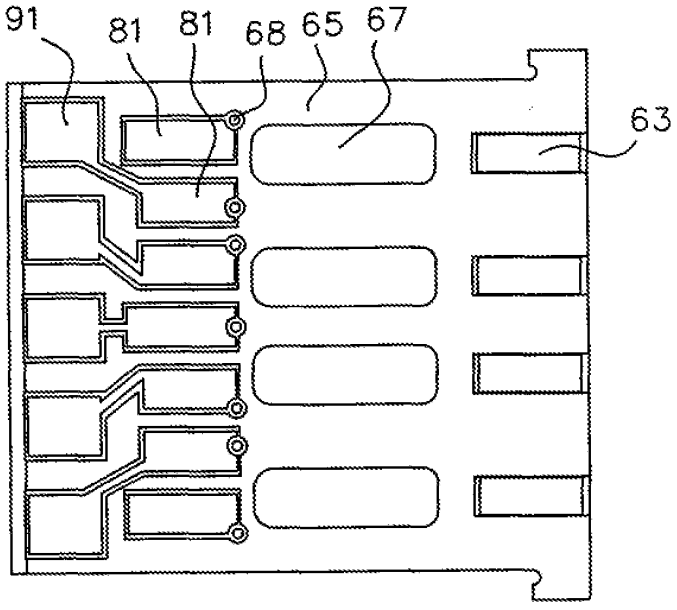


图 11

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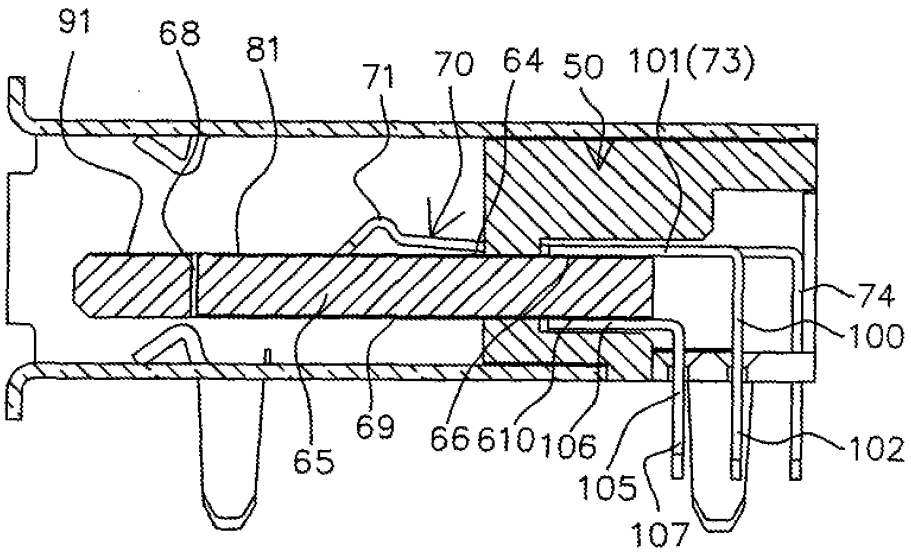


图 12

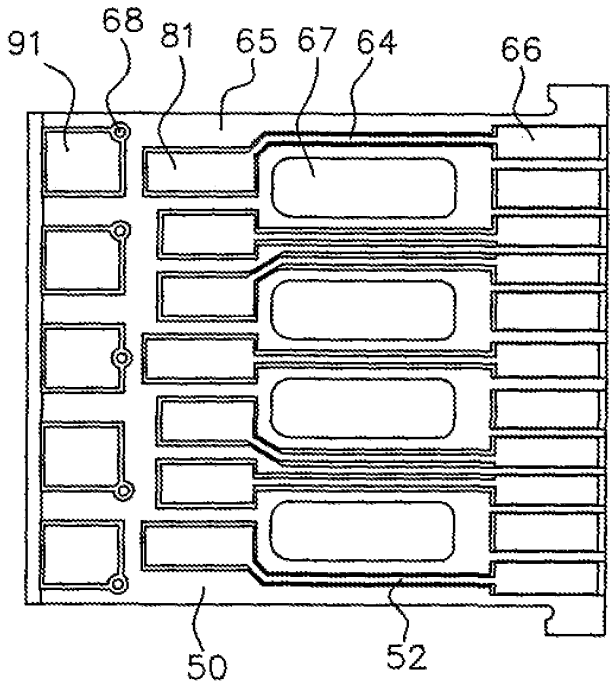


图 13

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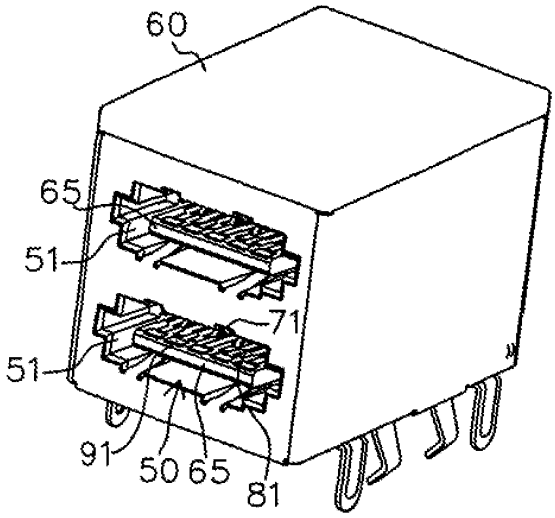


图 14

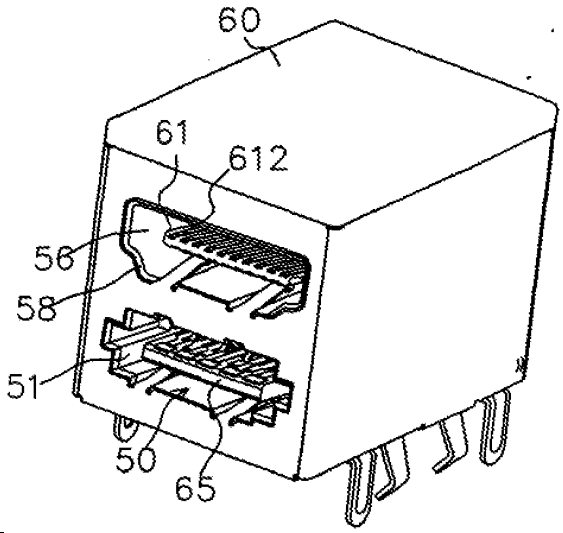


图 15

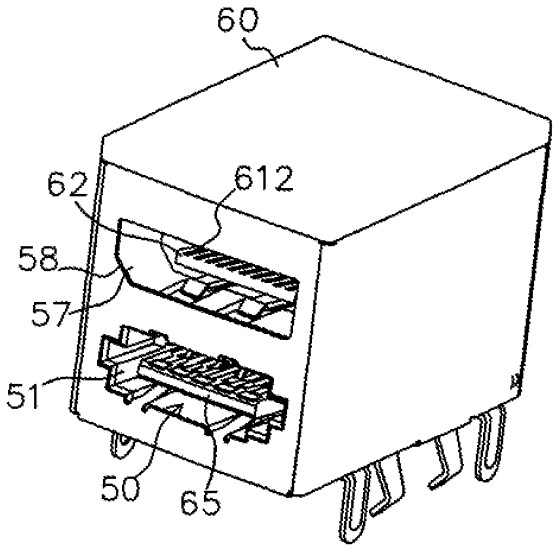


图 16

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CN201682065U Plug connector and components of cable connector

Applicants: APPLE INC

Inventors: HAWARTH RICHARD,KLUGEMENS WAN,MURPHY R SHAWN,NOSTLINGER CHRISTOPHER

Classifications:
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CPC **H01R12/7076 (EP); H01R12/716 (EP); H01R13/504 (EP); H01R13/64 (EP); H01R13/6658 (EP);** H01R13/74 (EP);

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Plug connector and components of cable connector

Abstract

The utility model provides a connector system. Various embodiments of connectors and connector assemblies provide modified structural features to meet evolving industrial design requirements while maintaining backward compatibility. In one embodiment, alignment posts on the two sides of a plug connector are substantially removed and the remaining connector shell reshaped so as to preserve alignment capability. Other pre-existing features such as alignment grooves and some or all springy raised tabs can be eliminated resulting in a more compact and monolithic structure for the connector without impacting functionality or backward compatibility. In another embodiment, a trim ring is molded to the base of the connector to form an integrated unit. The integrated unit results in a reduced size of the connector when it is incorporated into other devices such as a docking station; in yet another embodiment a printed circuit board is integrated into the boot of a connector assembly to act as an intermediate connection mechanism between the cable wires and the connector pins. Other functionality such as identification circuitry or electrostatic discharge protection circuitry can be incorporated on to the integrated printed circuit board.

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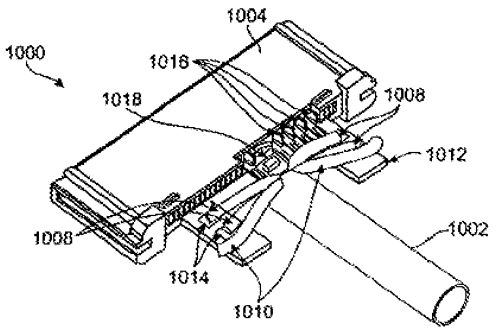
权利要求书 5 页 说明书 9 页 附图 5 页

(54)实用新型名称

插头连接器及电缆连接器组件

(57)摘要

本实用新型提供一种连接器系统。连接器和连接器组件的各个实施例提供了修改的结构特征以在保持向后兼容性的同时满足工业设计需要。将插头连接器两侧的对准柱完全去除并将剩余的连接器外壳重新成形以保持对准能力。诸如对准槽和弹性凸片的其它现有结构元件可被去除，这导致不影响功能或向后兼容性地得到更紧凑且单体的连接器结构。装饰环被塑造到连接器的基座上以形成一集成单元。该集成单元在被装入诸如系泊站的其它装置时导致尺寸减小的连接器。印刷电路板被集成到连接器组件的仓内以用作电缆导线和连接器针之间的中间连接机构。诸如识别电路或静电放电保护电路的其它功能可被加到集成的印刷电路板上。



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1. 一种用于具有插座连接器的连接器系统中的插头连接器，所述插座连接器具有向插座连接器的盒形壳体内部突出的对准突起，其特征在于，所述插头连接器包括：

主体，该主体具有宽度为W的底板、宽度为比W小的W' 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；和

电极阵列，该电极阵列沿所述主体的深度方向延伸并被绝缘材料定位到所述主体的底板的内表面上，从而在所述电极阵列和顶板之间的主体的内部留下插入空腔，

其中，所述第一侧板和第二侧板中的台阶与所述插座连接器的对准突起对准，以将插头连接器引导插入插座连接器壳体中。

2. 根据权利要求 1 所述的插头连接器，其特征在于，所述插头连接器还包括由卷绕插头连接器的导电材料的单板制成的外壳。

3. 根据权利要求 1 所述的插头连接器，其特征在于，所述插头连接器的每个侧板上的台阶具有弯曲边缘。

4. 根据权利要求 1 所述的插头连接器，其特征在于，所述电极阵列具有多达 30 针。

5. 根据权利要求 1 所述的插头连接器，其特征在于，所述插头连接器还包括塑造到插头连接器基座上的集成装饰环。

6. 根据权利要求 5 所述的插头连接器，其特征在于，所述装饰环由可耐受较高温度的材料制成。

7. 根据权利要求 6 所述的插头连接器，其特征在于，所述可耐受较高温度的材料是玻璃增强尼龙。

8. 根据权利要求 5 所述的插头连接器，其特征在于，具有集成装饰环的插头连接器被布置在印刷电路板上与垂直轴成预定的角度。

9. 根据权利要求 8 所述的插头连接器，其特征在于，所述预定的 角度是偏离垂直轴约 10 度。

10. 一种包括根据权利要求 1 所述的插头连接器的电缆连接器组件，其特征在于，所述电缆连接器组件还包括：

容纳多个导线的电缆；

将电缆的第一端连接到插头连接器的仓，其中，通过集成到仓中的印刷电路板形成电缆内的所述多个导线和插头连接器内的所述电极阵列之间的电耦合；以及

位于印刷电路板上并与所述插头连接器的预定电极电耦合的电阻器。

11. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述印刷电路板包含适于接收来自电缆的相应的多个导线的多个焊盘。

12. 根据权利要求 11 所述的电缆连接器组件，其特征在于，所述印刷电路板还包含将所述多个焊盘与所述电极阵列的相应的多个接点电耦合的多个导电迹线。

13. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述电缆连接器组件还包括位于印刷电路板上并被配置为执行一个或更多个预定功能的一个或更多个电子部件。

14. 根据权利要求 10 所述的电缆连接器组件，其特征在于，布置在印刷电路板上的电阻器是用于识别电缆连接器的类型的电阻器。

15. 根据权利要求 13 所述的电缆连接器组件，其特征在于，所述电缆连接器组件还包

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插布置在印刷电路板上并与所述插头连接器的一个或多个预定电极电耦合的静电放电保护电路。

16. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述电缆的第二端与通用串行总线连接器耦合。

17. 根据权利要求 14 所述的电缆连接器组件，其特征在于，所述电阻器被电耦合在两个预定电极之间。

18. 根据权利要求 17 所述的电缆连接器组件，其特征在于，所述电极阵列至少包括 30 个以行布置的针，并且所述电阻器被耦合在编号 10 的电极和接地电极之间。

19. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述多个导线包括用于通用串行总线连接的四个导线。

20. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述电缆包括一个或多个被配置用于提供电屏蔽的网状编带。

21. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述印刷电路板是括弧的形状，具有适于接收电缆的开口。

22. 根据权利要求 13 所述的电缆连接器组件，其特征在于，所述电缆连接器组件还包括布置在印刷电路板上的电磁干扰 EMI 抑制装置。

23. 根据权利要求 10 所述的电缆连接器组件，其特征在于，所述电缆包括适于增加 EMI 吸收的铁素体包覆。

24. 一种用于具有插座连接器的连接器系统中的插头连接器，所述插座连接器具有向插座连接器的盒形壳体内部突出的对准突起，其特征在于，所述插头连接器包括：

主体，该主体具有宽度为 W 的底板、宽度为比 W 小的 W′ 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；和

位于所述主体内的多个电极，所述多个电极包括沿所述主体的深度方向延伸并被绝缘材料定位到所述主体的底板的内表面上的单行电极，从而在所述单行电极和顶板之间的主体的内部留下插入空腔，其中所述主体内的所有电极都在单个行中，

其中，所述第一侧板和第二侧板中的台阶与所述插座连接器的对准突起对准，以将插头连接器引导插入插座连接器壳体中。

25. 根据权利要求 24 所述的插头连接器，其特征在于，所述插头连接器还包括由卷绕插头连接器的导电材料的单板制成的外壳。

26. 根据权利要求 24 所述的插头连接器，其特征在于，所述插头连接器的每个侧板上的台阶具有弯曲边缘。

27. 根据权利要求 24 所述的插头连接器，其特征在于，所述电极 阵列具有多达 30 针。

28. 根据权利要求 24 所述的插头连接器，其特征在于，所述插头连接器还包括塑造到插头连接器基座上的集成装饰环。

29. 根据权利要求 28 所述的插头连接器，其特征在于，所述装饰环由可耐受较高温度的材料制成。

30. 根据权利要求 29 所述的插头连接器，其特征在于，所述可耐受较高温度的材料是玻璃增强尼龙。

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31. 根据权利要求 26 所述的插头连接器，其特征在于，具有集成装饰环的插头连接器被布置在印刷电路板上与垂直轴成预定的角度。

32. 根据权利要求 31 所述的插头连接器，其特征在于，所述预定的角度是偏离垂直轴约 10 度。

33. 根据权利要求 24 所述的插头连接器，其特征在于，使用单行电极提供了厚度减小的插头连接器。

34. 根据权利要求 24 所述的插头连接器，其特征在于，所述单行电极包括 30 个电极。

35. 根据权利要求 24 所述的插头连接器，其特征在于，所述顶板、底板、第一侧板和第二侧板都是由单片导电材料形成的。

36. 根据权利要求 35 所述的插头连接器，其特征在于，所述导电材料的单板形成至少一个框架接点。

37. 根据权利要求 28 所述的插头连接器，其特征在于，所述插头连接器被包含在系泊于系泊表面上的手持式电子装置中，所述装饰环和所述插头连接器的尺寸被选择为：当所述手持式电子装置被系泊时，在所述手持式电子装置的底部与所述系泊表面之间产生间隙。

38. 一种包括根据权利要求 24 所述的插头连接器的电缆连接器组件，其特征在于，所述电缆连接器组件还包括：

容纳多个导线的电缆；

将电缆的第一端连接到插头连接器的仓，其中，通过集成到仓中的印刷电路板形成电缆内的所述多个导线和插头连接器主体内的所述单行电极之间的电耦合；以及

位于印刷电路板上并与所述插头连接器的预定电极电耦合的电阻器。

39. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述印刷电路板包含适于接收来自电缆的相应的多个导线的多个焊盘。

40. 根据权利要求 39 所述的电缆连接器组件，其特征在于，所述印刷电路板还包含将所述多个焊盘与所述单行电极的相应的多个接点电耦合的多个导电迹线。

41. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述电缆连接器组件还包括位于印刷电路板上并被配置为执行一个或更多个预定功能的一个或更多个电子部件。

42. 根据权利要求 38 所述的电缆连接器组件，其特征在于，布置在印刷电路板上的电阻器是用于识别电缆连接器的类型的电阻器。

43. 根据权利要求 41 所述的电缆连接器组件，其特征在于，所述电缆连接器组件还包括布置在印刷电路板上并与所述插头连接器的一个或多个预定电极电耦合的静电放电保护电路。

44. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述电缆的第二端与通用串行总线连接器耦合。

45. 根据权利要求 42 所述的电缆连接器组件，其特征在于，所述电阻器被电耦合在两个预定电极之间。

46. 根据权利要求 45 所述的电缆连接器组件，其特征在于，所述单行电极至少包括 30 个以行布置的针，并且所述电阻器被耦合在编号 15 的电极和接地电极之间。

47. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述多个导线包括用于通

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用串行总线连接的四个导线。

48. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述电缆包括一个或多个被配置用于提供电屏蔽的网状编带。

49. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述印刷电路板是括弧的形状，具有适于接收电缆的开口。

50. 根据权利要求 41 所述的电缆连接器组件，其特征在于，所述 电缆连接器组件还包括布置在印刷电路板上的电磁干扰 EMI 抑制装置。

51. 根据权利要求 38 所述的电缆连接器组件，其特征在于，所述电缆包括适于增加 EMI 吸收的铁素体包覆。

52. 一种插头连接器，其特征在于，所述插头连接器包括：

由单片导电材料形成的连接器外壳，所述连接器外壳具有宽度为 W 的底部、宽度为比 W 小的 W′ 的顶部、均具有容纳顶部和底部之间的宽度差的台阶的第一侧部和第二侧部；

位于所述连接器外壳底部内的绝缘材料，从而在所述绝缘材料和所述连接器外壳的顶部之间形成插入空腔；以及

位于所述连接器外壳中的单行针，所述单行针被绝缘材料定位到所述连接器外壳的底部内，从而所述针只在沿所述插入空腔的底侧出现，

其中，使所有针位于单个行中使得所述连接器外壳基本平坦。

53. 根据权利要求 52 所述的插头连接器，其特征在于，所述单行针包括 30 针。

54. 根据权利要求 52 所述的插头连接器，其特征在于，所述连接器外壳形成至少一个框架接点。

55. 根据权利要求 52 所述的插头连接器，其特征在于，所述连接器外壳包括至少一个凸片。

56. 一种插头连接器，其特征在于，所述插头连接器包括：

主体，该主体具有第一宽度的底板、宽度为比第一宽度小的第二宽度的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；和

位于所述主体内的多个电极，所述多个电极包括沿主体的深度方向延伸的单行电极并被绝缘材料定位到主体的底板的内表面上，从而在所述单行电极和顶板之间的主体的内部留下插入空腔，其中所述主体内的所有电极位于所述单行中，

其中，从插入空腔的顶侧延伸到所述顶板内表面的区域没有电极。

57. 根据权利要求 56 所述的插头连接器，其特征在于，所述单行电极包括 30 个电极。

58. 根据权利要求 56 所述的插头连接器，其特征在于，所述顶板、底板、第一侧板和第二侧板由单片导电材料形成。

59. 根据权利要求 58 所述的插头连接器，其特征在于，所述单片导电材料形成至少一个框架接点。

60. 一种插头连接器，其特征在于，所述插头连接器包括：

主体，该主体具有宽度为 W 的底板、宽度为比 W 小的 W′ 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；和

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位于所述主体内的多个电极，所述多个电板包括单行电极，每个电极具有单个倒钩，所述电极在所述主体的深度方向上延伸并被绝缘材料定位到主体的底板的内表面上，从而在所述单行电极和顶板之间的主体的内部留下插入空腔，其中所述主体内的所有电极位于所述单行中，

其中所述第一侧板和第二侧板中的台阶与插座连接器的对准突起对准，以将插头连接器引导插入插座连接器中。

61. 根据权利要求 60 所述的插头连接器，其特征在于，所述单行电极包括 30 个电板。

62. 根据权利要求 60 所述的插头连接器，其特征在于，所述顶板、底板、第一侧板和第二侧板由单片导电材料形成。

63. 根据权利要求 62 所述的插头连接器，其特征在于，所述单片导电材料形成至少一个框架接点。

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插头连接器及电缆连接器组件

[0001] 本申请是申请日为2008年1月4日，申请号为“2008200062667”、实用新型名称为“向后兼容的连接器系统”的分案申请。

[0002] 对相关申请的交叉引用

[0003] 本申请与发明名称为“Connector”的美国专利No.6776660、在2004年4月27日提交的发明名称为“Connector Interface System forMulti-Communication Device”的共同受让的专利申请No.10/833689(20750P-000500US/P3393US1)以及在2003年4月25日提交的发明名称为“Media Player System”的共同受让的专利申请No.10/423490(20750P-000900US/P3032US1)有关，通过引用将其全部并入于此。

[0004] 技术领域

[0005] 本实用新型一般涉及用于电子系统的连接器。更具体地说，本实用新型涉及将便携式或手持式装置连接到其它电子装置的连接器系统的各种实现及制造方法。

[0006] 背景技术

[0007] 最近五年见证了诸如移动电话、数字媒体播放器、个人数字助理等的手持式消费电子装置的迅速增涨。使得能够在这些装置和诸如主计算机、附件和电源的其它电子系统之间进行电互连的连接器技术已得到发展，以满足这些系统的从电气规范和接口协议到形状因子(form factor)的各种要求。可以在30针连接器平台中发现高度通用的连接器系统的好例子，在上面提到的已授权专利和待决专利申请中说明了该30针连接器平台的各个方面。已开发了包含该30针连接器平台作为用于提供电互连性的主要装置的一大批电子装置。随着行业 的发展，为了与现有装置对接和一起工作，随后的用于新老应用的装置的产生依赖于连接器平台的向后兼容性。另一方面，特别是在手持式消费电子装置市场中，曾经存在的减小电子装置尺寸或者出于其它工业设计考虑而另外修改其结构的需求常常要求重新设计包含连接器的装置的许多方面。因此，需要能够应对由这些竞争的需求提出的挑战的改进的连接器系统。

[0008] 实用新型内容

[0009] 本实用新型的各个实施例提供了具有更紧凑且单体的设计同时保持了向后兼容性的改进的连接器系统。在一个实施例中，将插头连接器的两侧的对准柱完全去除并将剩余的连接器外壳重新成形以保持对准能力。在一个实施例中，重新成形的连接器包含由卷绕连接器从而形成单个接缝的导电材料的单板制成的外壳。诸如对准槽和一些或所有弹性凸片的其它现有结构元件(feature)可被去除，这导致不影响功能或向后兼容性地得到更紧凑且单体的连接器结构。在另一实施例中，装饰环(trina ring)被塑造到连接器的基座上以与连接器形成一集成单元。该集成单元在被装入诸如系泊站(docking station)的其它装置时导致尺寸减小的连接器。在又一实施例中，印刷电路板被集成到连接器组件的仓内以用作电缆导线和连接器针之间的中间连接机构。诸如识别电路或静电放电保护电路的其它功能可被加到集成的印刷电路板上。

[0010] 因此，在一个实施例中，本实用新型提供了一种用于具有插座连接器的连接器系统中的插头连接器，该插座连接器具有向插座连接器的盒形壳体内突出的对准突起，该插

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头连接器包括：主体，该主体具有宽度为 W 的底板、宽度为比 W 小的 W′ 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；和电极阵列，该电极阵列沿主体的深度方向延伸并被绝缘材料定位到主体的底板的内表面上，从而在电极阵列和顶板之间的主体的内部留下插入空腔，其中第一侧板和第二侧板中的台阶与插座连接器的对准突起对准，以将插头连接器引导插入插座连接器壳体中。插头连接器还包含由卷绕主体的导电材料的单板制成的外壳。

[0011] 在另一实施例中，插头连接器还包含塑造到插头连接器的基座上的集成装饰环。在一特定实施例中，该集成装饰环由玻璃增强尼龙制成。在另一实施例中，减少将插头连接器内的电极保持在适当位置的倒钩的数量。

[0012] 在又一实施例中，本实用新型将印刷电路板集成到电缆连接器组件的仓内。在该实施例中，电缆中的导线通过印刷电路板与连接器电极电耦合。在一特定实施例中，印刷电路板还包含诸如识别电路或静电放电保护电路的附加功能。

[0013] 在一个实施例中，本实用新型提供了一种用于具有插座连接器的连接器系统中的插头连接器，所述插座连接器具有向插座连接器的盒形壳体内部突出的对准突起，其特征在于，所述插头连接器包括：主体，该主体具有宽度为 W 的底板、宽度为比 W 小的 W′ 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；电极阵列，该电极阵列沿所述主体的深度方向延伸并被绝缘材料定位到所述主体的底板的内表面上，从而在所述电极阵列和顶板之间的主体的内部留下插入空腔，其中，所述第一侧板和第二侧板中的台阶与所述插座连接器的对准突起对准，以将插头连接器引导插入插座连接器壳体中。

[0014] 在一个实施例中，本实用新型提供了一种包括上述插头连接器的电缆连接器组件，其特征在于，所述电缆连接器组件还包括：容纳多个导线的电缆；将电缆的第一端连接到插头连接器的仓，其中，通过集成到仓中的印刷电路板形成电缆内的所述多个导线和插头连接器内的所述电极阵列之间的电耦合；位于印刷电路板上并与所述插头连接器的预定电极电耦合的电阻器。

[0015] 在一个实施例中，本实用新型提供了一种用于具有插座连接器的 连接器系统中的插头连接器，所述插座连接器具有向插座连接器的盒形壳体内部突出的对准突起，其特征在于，所述插头连接器包括：主体，该主体具有宽度为 W 的底板、宽度为比 W 小的 W′ 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；位于所述主体内的多个电极，所述多个电极包括沿所述主体的深度方向延伸并被绝缘材料定位到所述主体的底板的内表面上的单行电极，从而在所述单行电极和顶板之间的主体的内部留下插入空腔，其中所述主体内的所有电极都在单个行中，其中，所述第一侧板和第二侧板中的台阶与所述插座连接器的对准突起对准，以将插头连接器引导插入插座连接器壳体中。

[0016] 在一个实施例中，本实用新型提供了一种包括上述插头连接器的电缆连接器组件，其特征在于，所述电缆连接器组件还包括：容纳多个导线的电缆；将电缆的第一端连接到插头连接器的仓，其中，通过集成到仓中的印刷电路板形成电缆内的所述多个导线和插头连接器主体内的所述单行电极之间的电耦合；位于印刷电路板上并与所述插头连接器的

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预定电极电耦合的电阻器。

[0017] 在一个实施例中，本实用新型提供了一种插头连接器，其特征在于，所述插头连接器包括：由单片导电材料形成的连接器外壳，所述连接器外壳具有宽度为 W 的底部、宽度为比 W 小的 W′ 的顶部、均具有容纳顶部和底部之间的宽度差的台阶的第一侧部和第二侧部；位于所述连接器外壳底部内的绝缘材料，从而在所述绝缘材料和所述连接器外壳的顶部之间形成插入空腔；位于所述连接器外壳中的单行针，所述单行针被绝缘材料定位到所述连接器外壳的底部内，从而所述针只在沿所述插入空腔的底侧出现，其中，使所有针位于单个行中使得所述连接器外壳基本平坦。

[0018] 在一种实施例中，本实用新型提供了一种插头连接器，其特征在于，所述插头连接器包括：主体，该主体具有第一宽度的底板、宽度为比第一宽度小的第二宽度的顶板、均具有容纳顶板和底板之间的宽 度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；位于所述主体内的多个电极，所述多个电极包括沿主体的深度方向延伸的单行电极并被绝缘材料定位到主体的底板的内表面上，从而在所述单行电极和顶板之间的主体的内部留下插入空腔，其中所述主体内的所有电极位于所述单行中，其中，从插入空腔的顶侧延伸到所述顶板内表面的区域没有电极。

[0019] 在一种实施例中，本实用新型提供了一种插头连接器，其特征在于，所述插头连接器包括：主体，该主体具有宽度为 W 的底板、宽度为比 W 小的 W′ 的顶板、均具有容纳顶板和底板之间的宽度差的台阶的第一侧板和第二侧板，其中第一侧板和第二侧板相对于提供基本上平坦的主体的顶板和底板较小；位于所述主体内的多个电极，所述多个电板包括单行电极，每个电极具有单个倒钩，所述电极在所述主体的深度方向上延伸并被绝缘材料定位到主体的底板的内表面上，从而在所述单行电极和顶板之间的主体的内部留下插入空腔，其中所述主体内的所有电极位于所述单行中，其中所述第一侧板和第二侧板中的台阶与插座连接器的对准突起对准，以将插头连接器引导插入插座连接器中。

[0020] 修改的连接器的这些和其它特征产生了保持与先前存在的相配连接器兼容的更紧凑且单体的连接器组件。以下的详细说明和附图使得可以更好地理解本实用新型的连接器系统的本质和优点。

[0021] 附图说明

[0022] 图 1 示出了插头连接器和插座连接器的等距视图以及这两个连接器的连接方式；

[0023] 图 2 和图 3 分别示出了现有插头连接器的简化顶视图和截面图；

[0024] 图 4 提供了根据本实用新型的一个实施例的经修改但向后兼容的插头连接器的前视截面图；

[0025] 图 5A 和图 5B 示出了根据本实用新型的一个实施例的经修改但向 后兼容的插头连接器的正面和背面的等距视图；

[0026] 图 6 提供了现有系泊系统的部件的子集的立体图；

[0027] 图 7A 和图 7B 分别示出了具有放在其基座上的保护环的连接器和放在印刷电路板上时的该连接器的侧视图；

[0028] 图 8A 和图 8B 分别提供了根据本实用新型的实施例的集成的连接器加保护环的背面和正面的等距视图；

[0029] 图 9A 和图 9B 分别示出了根据本实用新型的另一实施例的集成的连接器加保护

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环、以及经修改的针形状的侧视图；以及

[0030] 图 10A 和图 10B 分别示出了具有集成到连接器的仓中的印刷电路板的连接器组件的实施例和完全组装的连接器。

[0031] 具体实施方式

[0032] 参照图 1，该图示出了包含诸如 iPod™ 的手持式媒体播放器的一大批电子装置和为这些手持式媒体播放器开发的许多附件当前所使用的连接器系统 100。连接器系统 100 包含可插入插座连接器 102 中的插头连接器 101。这些连接器被设计为：当处于接合位置时，容纳于插头连接器 101 中的针阵列 110 与容纳于插座连接器 102 中的相应针阵列 104 接触。为了在插入过程中适当地对准这两个针阵列，插座连接器 102 包含从其外壳向内突出的一对突起 108A 和 108B。在一个实施例中，通过将连接器外壳的顶板切割成带角度的 C（或括弧）形状并将得到的舌片向插头壳体内部弯曲，从而形成突起 108A 和 108B。插头连接器 101 继而包含相应的一对槽或狭缝 114A 和 114B，当与插座连接器 102 接触时，该对槽或狭缝 114A 和 114B 与突起 108A 和 108B 啮合并帮助引导插入过程。

[0033] 在一些实施例中，插头连接器 101 包含这样的外壳或框架 (chassis)，该外壳或框架具有由导电材料制成以在连接器承载电信号时减少电磁干扰 (EMI) 的顶板和底板。插头连接器 101 还包含凸起的弹性凸片 116A 和 116B，其增加了两个接合连接器之间的压缩作用从而使啮合更牢固并进一步改善了 EMI 抑制。在其它的实施例中，插头连接器 101 还在插头连接器主体的任一侧包含诸如弹性止动销 118 的锁止机构。当被插入插座连接器 102 中时，止动销 118 首先被推入，然后在插座连接器主体内部被一次释放从而锁住这两个连接器。

[0034] 图 2 和图 3 分别提供了插头连接器 101 的示例性顶视图和截面图。在示出的实施例中，插头连接器 101 包含连接器壳体侧面上的对准柱 122A 和 122B。在本实施例中，顶板 120 以及凸片 116A 和 116B 由诸如金属的导电材料制成，而对准柱 122A 和 122B 由诸如塑料树脂的非导电材料制成。图 3 中的插头连接器 101 的前视截面图示出了电介质材料底座 (bed) 中的固定到连接器壳体的下板内壁上的针阵列 110，从而在连接器内部的剩余部分中留下了空腔 124。在一个实施例中，电介质材料底座可容纳 30 针。在表一中示出了如在 iPodTM 媒体播放器中使用的针对 30 针加两个框架接地凸片或针的示例性针指定。虽然电介质底座可容纳 30 针，但在电介质底座中包含的导电针的实际数量可根据应用而改变。此外，框架针的数量可少于或多于表一列出的两个。在一个例子中，多达六个的框架针为连接器外壳以及通过焊接到板上而使连接器物理紧固的机构提供接地。图 3 还示出了连接器壳体的两侧上的一对弹性凸片 116。该特定的连接器 101 在从对准柱 118 的外边缘开始测量时为约 21.30mm 宽，而在不包括对准柱 122 时为约 19.2mm 宽。在上述的美国专利 No. 6776660 和待决专利申请 No. 10/833689 和 No. 10/423490 中提供连接器系统 100 的示例性实施例的其它结构和电气细节，通过引用将其全部并入于此。

[0035] 表一

[0036]

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针	信号名称	I/O	功能
1	DGND	GND	移动装置中的数字接地
2	DGND	GND	移动装置中的数字接地
3	TPA+	I/O	FireWire 信号
4	USB D+	I/O	USB 信号
5	TPA-	I/O	FireWire 信号
6	USB D-	I/O	USB 信号
7	TPB+	I/O	FireWire 信号
8	USB Vbus	I	USB 功率进入;用于检测 USB 主机
9	TPB-	I/O	FireWire 信号
10	附件识别	I	识别外部附件
11	F/W PWR+	I	Firewire 和充电器输入电源 (8 ～ 15V DC)
12	F/W PWR+	I	Firewire 和充电器输入电源 (8 ～ 15DC)
13	附件电源	O	3.3V 是标称输出。低功率模式中的正常电流是 5mA,在高功率模式中电流限于 100mA。
14	保留		
15	DGND	GND	移动装置中的数字接地
16	DGND	GND	移动装置中的数字接地
17	保留		
18	RX	I	接收数据
19	TX	O	发送数据
20	附件检测	I	附件检测
21	S 视频 Y	O	S 视频的亮度成分
22	S 视频 C	O	S 视频的色度成分
23	复合视频	O	复合信号
24	遥感	I	检测遥控
25	LINE-IN L	I	输入到移动装置的用于左声道的线路电平
26	LINE-IN R	I	输入到移动装置的用于右声道的线路电平
27	LINE-OUT L	O	输出到移动装置的用于左声道的线路电平
28	LINE-OUT R	O	输出到移动装置的用于右声道的线路电平
29	音频返回		音频返回。这是信号并且绝不要在附件内接地。
30	DGND	GND	移动装置中的数字接地

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31	框架		用于连接器外壳的框架接地
32	框架		用于连接器外壳的框架接地

[0037] 如上所述，连接器系统 100 提供了被一大批电子装置广泛使用的互连平台。连接器系统 100 使手持式媒体播放器与包含主计算机的其 它电子装置，诸如系泊站、许多不同

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类型的电缆连接器、电池充电器和电源适配器、Hi-Fi 音响系统和 RF 系统以及照相机连接器的附属装置以及许多其它类型的装置互连。随着消费电子装置行业的发展，改变工业设计考虑和对进一步小型化的需求要求修改连接器的结构和设计。因此，存在的挑战是在保持与现有装置的兼容性的同时满足发展的工业设计要求。在一个实施例中，本实用新型修改了插头连接器 100 的结构设计，以在不影响功能或与现有插座连接器的兼容性的情况下实现更紧凑且单体的结构。

[0038] 参照图 4，该图示出了根据本实用新型的一个实施例的连接器 400。连接器 400 与插头连接器 101 相比更加紧凑，然而在功能上与连接器系统 100 等同并且在结构上与连接器系统 100 兼容。许多的结构修改使连接器 400 可以更紧凑同时向后兼容。在这些修改中有将对准柱 118 去除。这导致两个有利的特征。首先，连接器的总宽度 W 从约 21.30mm 减小到约 19.2mm。第二，去除对准柱提供了从卷绕整个连接器壳体的单板构建连接器外壳 402 的选项。在一个实施例中，形成连接器外壳的单板由诸如金属的导电材料制成，这进一步提高了连接器的 EMI 抑制。

[0039] 其次，替代槽或狭缝（图 1 和图 2、图 3 中的 114），如图 4 所示在外壳 402 的各侧板处形成台阶 404。这导致具有比下板的约 19.2mm 的宽度 W 小的约 17.35mm 的宽度 W′ 的上板（如图 4 所示）。板的尺寸和得到的台阶 404A 和 404B 的尺寸被设计为在连接器 400 被插入插座连接器 102 中时与插座连接器 102 的啮合突起 108 摩擦地相配。台阶 404 的角度和曲率半径被设计为有利于将外壳 402 制造成导电材料的单板。在示出的例子中，从各侧的台阶得到的三个边缘中的每一个具有与锐角相对的弯曲轮廓。

[0040] 图 5A 和图 5B 示出了根据本实用新型的该实施例的连接器 400 的正面和背面的等距视图。如图 5A 和图 5B 所示，外壳 402 由卷绕连接器从而形成接缝 406 的材料的单板制成。在该实施例中，连接器 400 包含位于连接器的外壳 402 的一个板上而在另一个板上没有的弹性凸片 408A 和 408B。应当理解，凸片 408 的设置可以变化，从每侧有二 个或更多个到根本没有。这些修改的组合产生了更紧凑且单体同时又与先前存在的连接器系统 100 兼容的连接器结构。

[0041] 如上面解释的那样，插头连接器具有从电缆到系泊站的大量应用。根据本实用新型的另一实施例，当连接器 400 是系泊站的一部分时，实现了连接器组件的进一步小型化。图 6 提供了系泊系统 600 的部件的子集的立体图。诸如插头连接器 101（图 1）的连接器被安装在印刷电路板 (PCB)602 的顶表面上，而诸如插座连接器 102（图 1）的插座连接器被固定到 PCB 602 的一面。在完全组装系泊系统 600 之前，将通常由塑料制成的保护环 604 插入在连接器 101 的基座周围。图 7A 示出了组合的连接器 101 和塑料装饰环 604 的等距视图，而图 7B 提供了其侧视图。如图 6 和图 7B 所示，连接器 / 环组件通常倾斜一角度，该角度在本例子中为偏离垂直轴约 15 度的角度。该角度导致系泊在系泊系统 600 中的装置倾斜以向用户提供更好的观察角度。在图 7B 中还指出了得到的组件的基座结构的总厚度，该总厚度在这种情况下为约 3.9mm。图 7B 还示出了从基座下面向外延伸并延伸到 PCB 上的针 606。

[0042] 根据本实用新型的一个实施例，不使用插入在连接器的基座周围的单独的塑料装饰环，而是将更小的装饰环塑造到连接器基座上以形成一集成单元。图 8A 和图 8B 示出了具有集成的装饰环 802 的连接器组件 800 的背面和正面的等距视图。图 8B 示出了装饰环

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802 中的可通过其到达针 804 的开口。将针 804 电连接到 PCB 上的导电迹线的焊接工艺将连接器组件 800 暴露于高温下。装饰环 802 因此优选由诸如玻璃增强尼龙等的可耐受较高温度的材料制成。

[0043] 具有集成装饰环 802 的连接器组件 800 具有明显减小的厚度，并因此可更低地放置于系泊基座中。图 9A 针对一示例性实施例指明基座厚度的减小，其中基座厚度被减小到约 1.42mm。虽然图 8A 和图 8B 示出了使用更紧凑的连接器设计（图 4 和图 5 中的 400）作为连接器组件 800 的一部分，但先前存在的连接器也可受益于塑造的装饰环设计。应当注意，在一些应用中可能希望在被系泊的装置的底部和连 接器周围的系泊表面之间具有间隙。例如，手持式电子装置可具有诸如麦克风和扬声器的集成音响系统，该集成音响系统具有位于装置的基座上的接近与系泊连接器接合的连接器的开口。这种装置的声学需求可能要求当装置被系泊时在装置的底部和系泊表面之间存在间隙。对于这些应用，可将连接器组件 800 的总高度调整为产生希望的间隙以改善装置的声学性能。

[0044] 在另一实施例中，连接器组件 800 使用尺寸更小的针（图 8B 中的 804）。图 9B 示出了示例性的针 900 的形状。针 900 的高度更短并且具有更少的倒钩，在本例子中具有一个倒钩 902。在诸如插头连接器 101（图 1）的现有连接器中使用的针一般被设计为具有多个倒钩并且更高。倒钩一般被添加到针结构上以在它们被容纳于连接器内时增加保持力。尺寸减小的总体连接器结构允许连接器组件 800 使用更短的并具有更少倒钩的针 900。在一个实施例中，连接器组件 800 被设计为以比图 7B 所示的角度小的角度位于系泊系统的 PCB 上。根据本实施例，连接器组件的角度被减小到偏离垂直轴约 10 度。减小的角度降低了当媒体播放器装置被插入系泊站时翻倒的可能性，因此允许更小的系泊站覆盖区（footprint）。在于 2005 年 8 月 24 日提交的发明名称为“Docking Station for Handheld Electronic Devices”的共同受让的专利申请 No. 11/212302（代理机构卷号 20750P-001880OUS/P3773US1）以及于 2003 年 4 月 25 日提交的发明名称为“Media PlayerSystem”的专利申请 No. 11/423490（代理机构卷号 20750P-000900US/P3032US1）中更详细地说明了可使用连接器组件 800 及其各种结构元件的示例性系泊系统，通过引用将它们的全文都并入于此。

[0045] 在又一实施例中，本实用新型提供了可将 PCB 集成到连接器仓（boot）内的改进的电缆连接器组件。参照图 10A，该图示出了与电缆连接器组件 1000 连接的电缆 1002 的一端。电缆连接器组件 1000 包含通过仓部分 1006 而固定到电缆 1002 的连接器 1004。仓 1006 一般由诸如塑料的材料制成，并被设置为保护使连接器 1004 与电缆 1002 内的导线电互连的配线并为用户提供了手柄。代替将电缆 1002 内的导线直接焊接到连接器 1004 中的针，根据本实施例的本实用新型使用 PCB 作为电缆和连接器之间的中间连接机构。PCB 被容纳于电缆连接器组件 1000 的仓 1006 内。如图 10A 所示的连接器 1004 是图 1 和图 2、图 3 所示的类型（插头连接器 101）。应当理解，本实用新型的该实施例也与诸如关于图 4 和图 5 说明的那些连接器的修改的连接器等同地工作。

[0046] 图 10B 示出了根据本实用新型的示例性实施例的电缆连接器组件 1000 的内部结构。绝缘导线 1008 在电缆 1002 和连接器 1004 之间的接触点附近延伸到电缆 1002 外面。应当理解，虽然在本例子中仅示出了四根导线 1008，但是导线的数量可根据电缆连接器的应用而改变。例如，当电缆连接器的另一端与通用串行总线（USB）连接器连接时，电缆将承载四根导线。在示出的实施例中，除了四根导线 1008 以外，电缆 1002 还包含从电缆端部延

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伸出去的被分开的编带 (braid)1010。编带 1010 优选采取网状编带的形式并为接地和连接器的其它导电部件提供屏蔽。该组件还包含通过例如焊接机构固定到连接器 1004 上的 PCB 1012。PCB 1012 包含焊盘 1014，导线 1008 处于焊盘 1014 处并与其电连接。PCB 1012 上的导电迹线（未示出）通过接点 1016 将焊盘 1014 连接到连接器 1004 中的适当的针。在图 10B 所示的例子中示出的 PCB 1012 具有带有角的 C（或括弧）的形状，或者如果连同电缆 1002 一起观察，那么它具有字母 T 的帽子的形状。PCB 1012 也可以具有其它形状。

[0047] 当多条电缆导线与多个紧密隔开的连接器针连接时，将电缆导线直接连接到连接器针上需要较高的精度。将 PCB 1012 集成在电缆连接器组件 1000 的仓 1006 中的优点是通过 PCB 1012 制成的中间连接缓解了这种需要。根据本实用新型的本实施例的电缆连接器组件的另一优点是：包含了 PCB 1012，这允许制造商将诸如静电放电 (ESD) 保护电路、电缆识别电路或 EMI 抑制构造的其它功能加到 PCB 上。

[0048] 在一个实施例中，PCB 1012 还包含允许与电缆连接的装置识别电 缆的类型的电缆识别电路。根据本实施例，PCB 1012 包含连接在连接器 1004 的两个预定针之间的电阻元件 1018。在一个例子中，电阻器 1018 连接在连接器 1004 的针 10 和 15 之间，其中，根据表一所示的针指定表，针 10 是“附件识别”输入针，而针 15 是数字接地针。当电缆连接器组件 1000 被插入诸如便携式媒体播放器或移动电话的电子装置中时，该装置将能够通过检测有无电阻器 1018 来识别电缆的类型。如上所述，根据应用的需要，可将其它功能加到集成的 PCB 上。例如，电缆 1002 本身可被卷绕在铁素体中，这增加了 EMI 吸收并进一步提高了电缆的 RF 性能。在于 2007 年 1 月 3 日提交的发明名称为“Cable with Noise Suppression”的共同待决并且共同受让的专利申请 No. ___/_____（客户用编号 P5067US1）中更详细地说明了连接器电缆组件的该方面，通过引用将其全部内容并入于此。

[0049] 已说明了根据本实用新型的改进的连接器和连接器组件的各个实施例。虽然在以上的特定实施例的上下文中说明了这些实用新型，但许多修改和变型也是可能的。因此，以上说明是出于说明的目的，而不是想要进行限制。例如，提到诸如金属或玻璃增强尼龙等的各种类型的材料是出于说明的目的，并且其它类似的替代方案也落在本实用新型的范围内。此外，提到的上述各种结构的顶部或底部或者正面和背面是相对的，并且可根据参考点而互换地使用。类似地，在以上的说明全文中提供的尺寸和大小仅是出于说明的目的，这里说明的实用新型构思可被应用于具有不同尺寸的结构。因此，本实用新型的范围和宽度不应被上述特定实施例所限制，而应由以下的权利要求和它们的等同物的全部延伸来确定。

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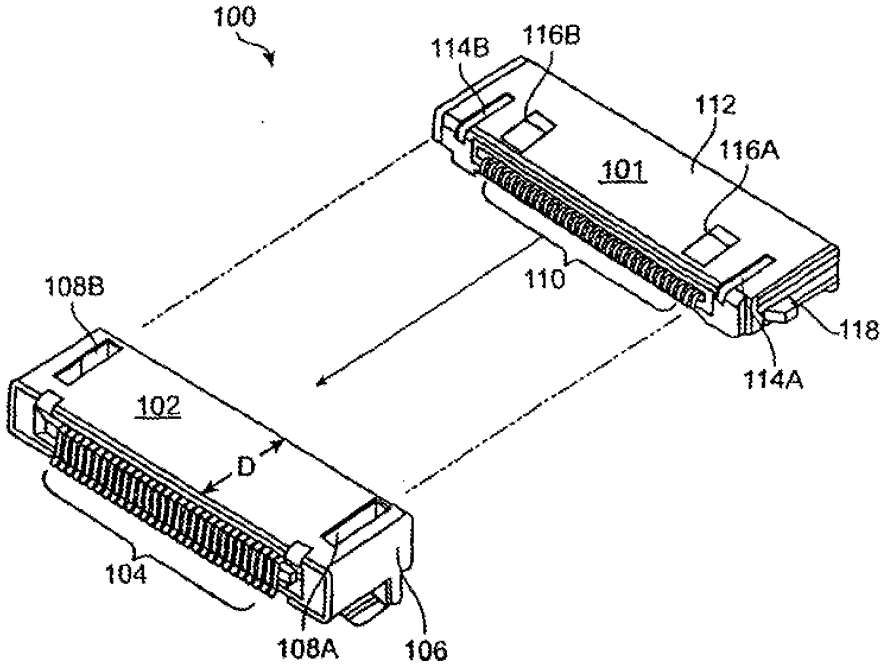


图 1

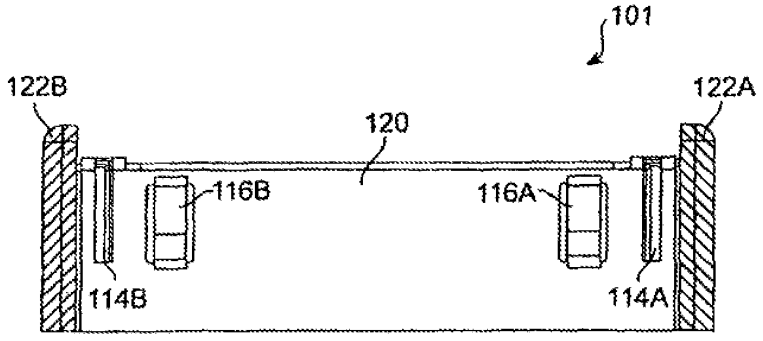


图 2

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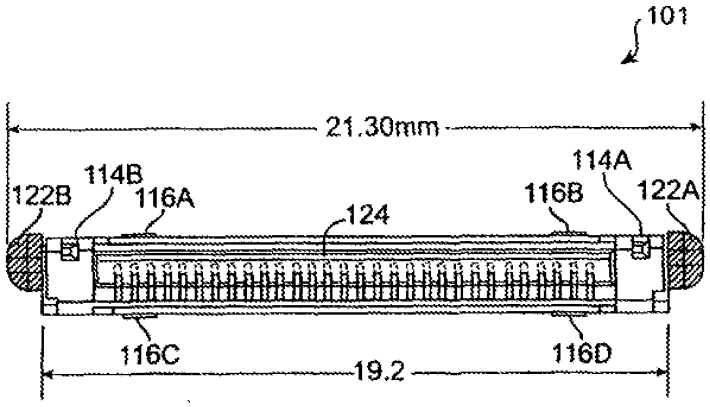


图 3

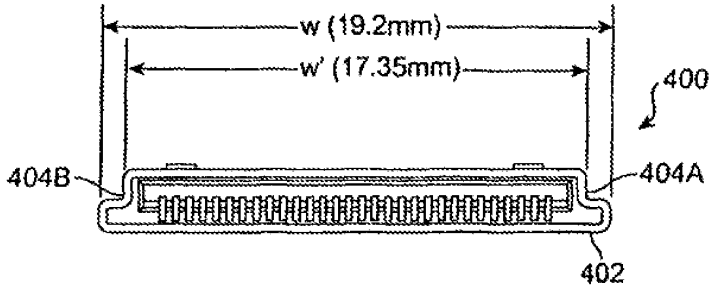


图 4

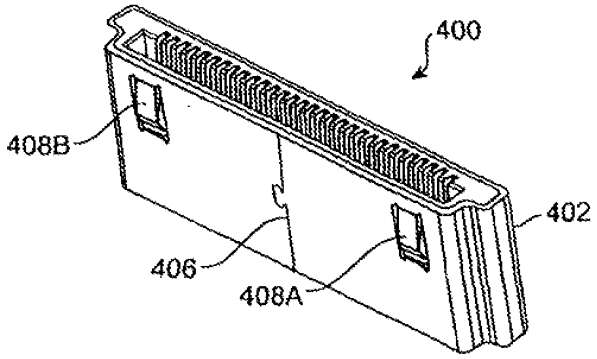


图 5A

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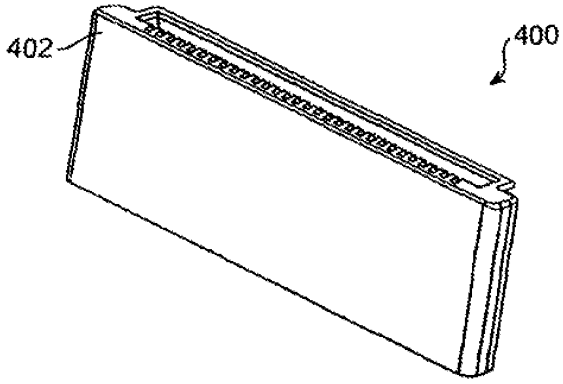


图 5B

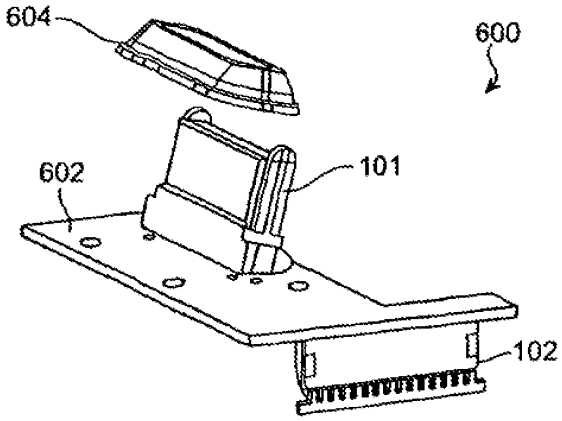


图 6

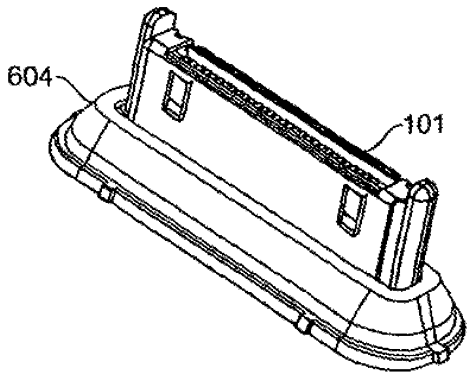


图 7A

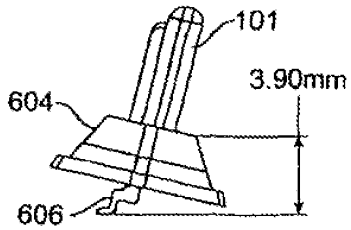


图 7B

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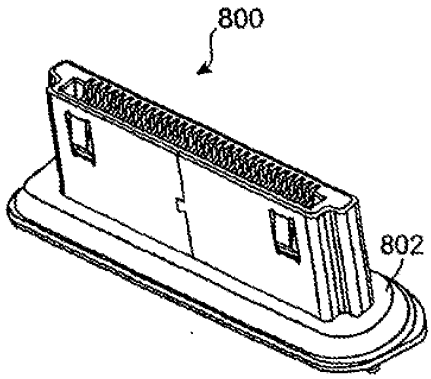


图 8A

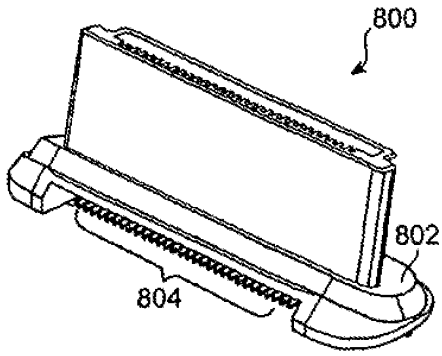


图 8B

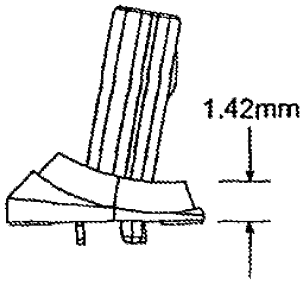


图 9A

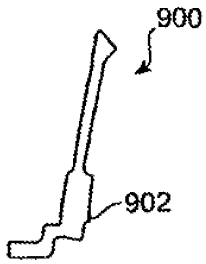


图 9B

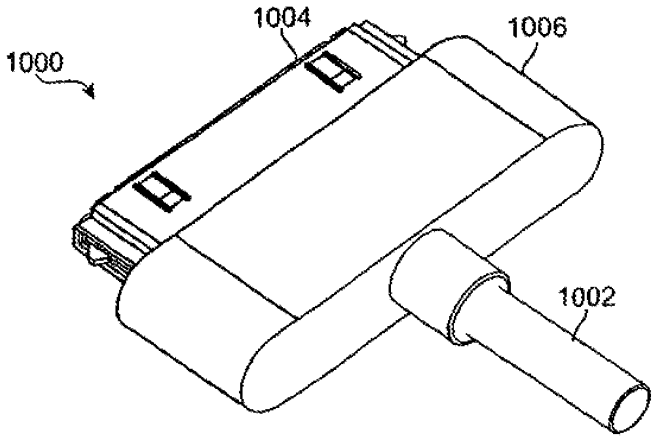


图 10A

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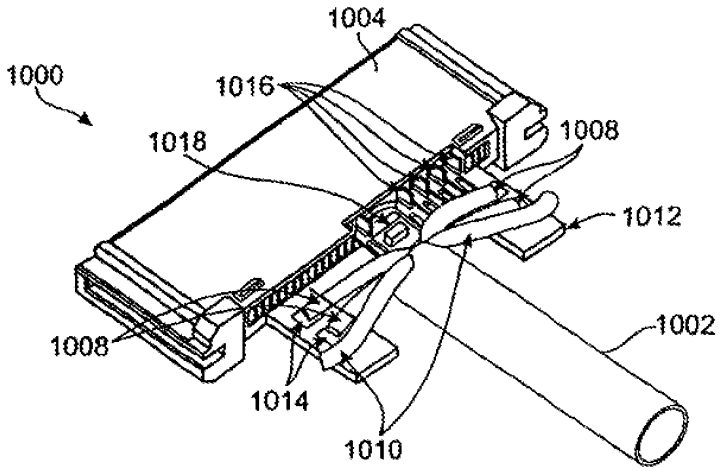


图 10B

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Espacenet

CN201708282U Electronic card connector

Applicants: ZHOUXIAN CAI

Inventors: ZHOUXIAN CAI

Classifications:
IPC ***H01R12/71; H01R13/46; H01R13/64; H01R27/00;***

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Electronic card connector

Abstract

An electronic card connector is provided with a base body, at least one row of terminal and a stop plate, wherein the base body is provided with a plastic base and an upper cover covered on the plastic base, the base body is internally provided with at least one slot, and the front end of the base seat is provided with an inserting opening of the slot; the row of terminal is arranged on the plastic base; and the stop plate is in a frame shape and is laterally arranged in the base body, the center of the stop plate is provided with an opening and the periphery thereof is provided with two sides, a front side and a back side, when an electronic card is inserted into the inserting opening, one side of the electronic card can not prop against one side of the stop plate to fall into the opening, and when being inserted into again, the electronic card can prop against the front edge of the back side of the stop plate. The electronic card connector of the utility model can stop and position one electronic card, so the electronic card only can be inserted into the preset position and can not be inserted deeply.

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H01R 13/64(2006.01)
H01R 13/46(2006.01)

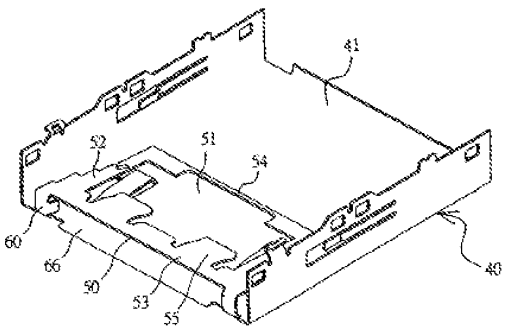
权利要求书 1 页 说明书 6 页 附图 19 页

(54)实用新型名称

电子卡连接器

(57)摘要

一种电子卡连接器，其设有：一座体，其设有一塑胶底座及一盖合于该塑胶底座上的上盖，该座体内设有至少一卡槽，该座体前端为该至少一个卡槽的插入口；至少一排端子，其设于该塑胶底座上；及一挡止板，其呈一框形体且横向设于该座体内，其中央设有一开口及四周设有两侧边及前、后边，当一电子卡由该插入口插入时，该电子卡一侧末抵压该挡止板一侧边而掉入该开口，当该电子卡再插入时即抵止于该挡止板的后边的前缘。本实用新型的电子卡连接器可挡止定位一电子卡，使该电子卡仅能插入至设定位置，而不会继续插入。



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1. 一种电子卡连接器，其特征在于：设有：

一座体，设有一塑胶底座及一盖合于该塑胶底座上的上盖，该座体内设有至少一卡槽，该座体前端为该至少一个卡槽的插入口；

至少一排端子，设于该塑胶底座上；及

一挡止板，呈一框形体且横向设于该座体内，所述挡止板中央设有一开口及四周设有两侧边及前、后边，当一电子卡由该插入口插入时，该电子卡一侧末抵压该挡止板一侧边而掉入该开口，当该电子卡再插入时即抵止于该挡止板的后边的前缘。

2. 如权利要求 1 所述的电子卡连接器，其特征在于：该至少一卡槽包括有多个卡槽，该多个卡槽为不同宽度或高度且具有共用空间，借以使不同尺寸的电子卡可插入定位。

3. 如权利要求 1 所述的电子卡连接器，其特征在于：其是用以连接一第一电子卡及一第二电子卡，该第二电子卡较该第一电子卡为薄且窄，该第一、二电子卡的一端设有相同排列的接点，该至少一排端子设有一排第一端子，该挡止板两侧各设有一纵向的侧部，该挡止板下方为第一插入口，该挡止板、两侧部及上盖的顶面围成一第二插入口；该第一电子卡由第一插入口插入一卡槽时其接点与第一端子电连接；该第二电子卡自该第二插入口呈倾斜插入时其接点可降低而与该第一端子电连接。

4. 如权利要求 3 所述的电子卡连接器，其特征在于：该第二插入口较该至少一个卡槽为窄。

5. 如权利要求 1 所述的电子卡连接器，其特征在于：该上盖为金属材质，该挡止板及两侧部与上盖一体冲压成形，该挡止板及两侧部自上盖的顶面前端反折向下。

6. 如权利要求 1 所述的电子卡连接器，其特征在于：该挡止板的前边设有向开口延伸且具向上溢压的弹片。

7. 如权利要求 1 所述的电子卡连接器，其特征在于：该挡止板的后边的中段较两侧为窄，借以形成较佳弹性。

8. 如权利要求 1 所述的电子卡连接器，其特征在于：该挡止板的后边的中段断开呈一缺口，借以形成较佳弹性。

9. 如权利要求 1 所述的电子卡连接器，其特征在于：该挡止板片与上盖分开，其二侧与该塑胶底座卡定。

10. 如权利要求 1 所述的电子卡连接器，其特征在于：该电子卡的连接端一侧设有一缺口，该电子卡一侧抵压该挡止板一侧边，电子卡另一侧因未抵压该挡止板另一侧边而掉入该开口。

11. 如权利要求 1 所述的电子卡连接器，其特征在于：该挡止板自该上盖的顶面刺破并向下凸出，该塑胶座体设有一分隔板分隔成一上卡槽及一下卡槽。

12. 如权利要求 11 所述的电子卡连接器，其特征在于：该下卡槽包括有多个卡槽，该多个卡槽为不同宽度或高度且具有共用空间，借以使不同尺寸的电子卡可插入定位。

13. 如权利要求 11 所述的电子卡连接器，其特征在于：该塑胶座体设有一排第一端子及一排第二端子，该第一端子的接点凸出至上卡槽，该第二端子的接点位于下卡槽，该上卡槽可插入 MS-Duo C 与第一端子电连接，该下卡槽可插入 SDC 或 MMC，两者皆与第二端子电连接。

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电子卡连接器

【技术领域】

[0001] 本实用新型是有关于一种电连接器，特别是关于一种连接电子卡的电连接器。

【背景技术】

[0002] 电脑所使用的电子卡有多媒体储存卡或是记忆卡，目前市面上的记忆卡有多种规格如Secure Digital Card(简称SDC)、Muti Media Card(简称MMC)、Smart Media Card(简称SMC)、Memory Stick Card(简称MSC)、MemoryStick Duo Card(简称MS-Duo C)、Memory Stick Pro HG Card(简称MSHG C)、XD-Picture Card(简称XDC)、Compact Flash Card(简称CFC)…等等，由于各规格的记忆卡其接点位置皆不同，故不同规格的记忆卡所需配合插接的电连接器则不相同。

[0003] 为了达到使用上的方便性，制造业者皆想尽办法将各种不同型态的电连接器加以整合成一种可适用数种规格的记忆卡使用的电连接器。

[0004] 请参阅图1A、1B所示，MSC目前有大小两种不同规格即Memory StickCard(以下简称大卡)及Memory Stick Duo Card(以下简称小卡)，，大卡10及小卡15的一端分别设有相同排列的接点11、16，大卡10较小卡15为厚且宽，另外SDC也发展一款小型卡，简称为mini-SDC，如图1C所示，该mini-SDC18大致与小卡15等宽且较短，其一侧设有一缺口19，而该小卡15一侧则没有缺口。

[0005] 如此，如何使一多卡共用连接器可使大卡及小卡插入时均可与相同的端子电连接且大卡及小卡皆可稳定卡定，则是目前连接器不容易达成的问题，因为连接器内若设计可卡定小卡的卡槽，则大卡或其他卡就会受到该卡槽阻挡而无法插入，故目前的连接器是只设有卡定大卡的卡槽，而小卡则借由弹片在两侧及上方弹性抵压，然而如此设计并无法使小卡稳固定位且构造复杂。

【实用新型内容】

[0006] 本实用新型的主要目的在于提供一种电子卡连接器，其是可挡止定位一电子卡，使该电子卡仅能插入至设定位置，而不会继续插入。

[0007] 本实用新型的次要目的在于提供一种电子卡连接器，其是可稳固的电连接两种不同大小尺寸且具相同接点排列的电子卡。

[0008] 为达上述目的，本实用新型电子卡连接器，其设有：一座体，其设有一塑胶底座及一盖合于该塑胶底座上的上盖，该座体内设有至少一卡槽，该座体前端为该至少一个卡槽的插入口；至少一排端子，其设于该塑胶底座上；及一挡止板，其呈一框形体且横向设于该座体内，其中央设有一开口及四周设有两侧边及前、后边，当一电子卡由该插入口插入时，该电子卡一侧未抵压该挡止板一侧边而掉入该开口，当该电子卡再插入时即抵止于该挡止板的后边的前缘。

[0009] 承接上述，本实用新型提供一种电子卡连接器，其特征在于：设有：

[0010] 一座体，设有一塑胶底座及一盖合于该塑胶底座上的上盖，该座体内设有至少一

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卡槽，该座体前端为该至少一个卡槽的插入口；

[0011] 至少一排端子，设于该塑胶底座上；及

[0012] 一挡止板，呈一框形体且横向设于该座体内，所述挡止板中央设有一开口及四周设有两侧边及前、后边，当一电子卡由该插入口插入时，该电子卡一侧未抵压该挡止板一侧边而掉入该开口，当该 电子卡再插入时即抵止于该挡止板的后边的前缘。

[0013] 所述的电子卡连接器，其特征在于：该至少一卡槽包括有多个卡槽，该多个卡槽为不同宽度或高度且具有共用空间，借以使不同尺寸的电子卡可插入定位。

[0014] 所述的电子卡连接器，其特征在于：其是用以连接一第一电子卡及一第二电子卡，该第二电子卡较该第一电子卡为薄且窄，该第一、二电子卡的一端设有相同排列的接点，该至少一排端子设有一排第一端子，该挡止板两侧各设有一纵向的侧部，该挡止板下方为第一插入口，该挡止板、两侧部及上盖的顶面围成一第二插入口；该第一电子卡由第一插入口插入一卡槽时其接点与第一端子电连接；该第二电子卡自该第二插入口呈倾斜插入时其接点可降低而与该第一端子电连接。

[0015] 所述的电子卡连接器，其特征在于：该第二插入口较该至少一个卡槽为窄。

[0016] 所述的电子卡连接器，其特征在于：该上盖为金属材质，该挡止板及两侧部与上盖一体冲压成形，该挡止板及两侧部自上盖的顶面前端反折向下。

[0017] 所述的电子卡连接器，其特征在于：该挡止板的前边设有向开口延伸且具向上溢压的弹片。

[0018] 所述的电子卡连接器，其特征在于：该挡止板的后边的中段较两侧为窄，借以形成较佳弹性。

[0019] 所述的电子卡连接器，其特征在于：该挡止板的后边的中段断开呈一缺口，借以形成较佳弹性。

[0020] 所述的电子卡连接器，其特征在于：该挡止板片与上盖分开，其二侧与该塑胶底座卡定。

[0021] 所述的电子卡连接器，其特征在于：该电子卡的连接端一侧设有一缺口，该电子卡一侧抵压该挡止板一侧边，电子卡另一侧因未抵压该挡止板另一侧边而掉入该开口。

[0022] 所述的电子卡连接器，其特征在于：该挡止板自该上盖的顶面刺破并向下凸出，该塑胶座体设有一分隔板分隔成一上卡槽及一下卡槽。

[0023] 所述的电子卡连接器，其特征在于：该下卡槽包括有多个卡槽，该多个卡槽为不同宽度或高度且具有共用空间，借以使不同尺寸的电子卡可插入定位。

[0024] 所述的电子卡连接器，其特征在于：该塑胶座体设有一排第一端子及一排第二端子，该第一端子的接点凸出至上卡槽，该第二端子的接点位于下卡槽，该上卡槽可插入 MS-Duo C 与第一端子电连接，该下卡槽可插入 SDC 或 MMC，两者皆与第二端子电连接。

[0025] 由以上的说明，本实用新型在不影响大卡及数种不同卡插入定位条件下，小卡仍能由挡止板上方的第二插入口斜插，借由挡止板支撑定位而稳固的与第一端子电连接。另外，与小卡等宽且较短的 mini-SDC 纵使不慎由第二插入口误插时，该 mini-SDC 可借由该挡止板 50 挡止而不致继续插入掉入座体内而无法取出。

[0026] 本实用新型的上述及其他目的、优点和特色由以下较佳实施例的详细说明中并参考图式当可更加明白，其中：

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【附图说明】

[0027] 图 1A、1B、1C 是现有三种记忆卡的立体图。

[0028] 图 2 是本实用新型第一实施例的立体分解图。

[0029] 图 3 是本实用新型第一实施例的立体组合图。

[0030] 图 4 是本实用新型第一实施例的前视图。

[0031] 图 5 是本实用新型第一实施例的侧视图。

[0032] 图 6 是本实用新型第一实施例的上盖内面立体图。

[0033] 图 7 是本实用新型第一实施例的第一卡槽前视示意图。

[0034] 图 8 是本实用新型第一实施例的第二卡槽前视示意图。

[0035] 图 9 是本实用新型第一实施例的第三卡槽前视示意图。

[0036] 图 10 是本实用新型第一实施例的大卡插入状态上视图。

[0037] 图 11 是本实用新型第一实施例的大卡插入状态侧视剖面图。

[0038] 图 12 是本实用新型第一实施例的小卡插入状态上视图。

[0039] 图 13 是本实用新型第一实施例的小卡插入状态侧视剖面图。

[0040] 图 14 是本实用新型第一实施例的该 mini-SDC 误插状态立体图。

[0041] 图 15 是本实用新型第一实施例的该 mini-SDC 误插状态侧视体图。

[0042] 图 16 是本实用新型第二实施例的上盖、挡止板与前座的立体分解图。

[0043] 图 17 是本实用新型第二实施例的挡止板与前座的立体组合图。

[0044] 图 18 是本实用新型第二实施例的上盖、挡止板与前座的组合前视图。

[0045] 图 19 是本实用新型第三实施例的挡止板与前座的立体组合图。

[0046] 图 20 是本实用新型第四实施例的立体分解图。

[0047] 图 21 是本实用新型第四实施例的立体组合图。

[0048] 图 22 是本实用新型第四实施例的使用状态图。

[0049] 图 23 是本实用新型第四实施例的使用状态图。

[0050] 图 24 是本实用新型第五实施例的立体分解图。

[0051] 图 25 是本实用新型第五实施例的立体组合图。

[0052] 图 26 是本实用新型第六实施例的立体分解图。

[0053] 大卡 10 接点 11 小卡 15 接点 16

[0054] mini-SDC 18 缺口 19

[0055] 塑胶座体 20 前座 21 后座 22 第一卡槽 23

[0056] 第二卡槽 24 第三卡槽 25 卡块 26 第一斜面 27

[0057] 平台 28 卡块 29 隔板 210 上卡槽 211

[0058] 下卡槽 212 第一端子 31 第二端子 32

[0059] 第三端子 33 第四端子 34 第五端子 35 第五端子 35' 第六端子 36 接点 37 接点 38 接点 39 接点 310 上盖 40 顶面 41

[0060] 侧面 42 卡孔 43 侧片 45 第二斜面 46

[0061] 挡止板 50 开口 51 侧边 52 前边 53

[0062] 后边 54 弹片 55 接合部 56 卡孔 57

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[0063] 缺口 58 侧部 60 第一插入口 65 第二插入口 66

【具体实施方式】

[0064] 请参阅图 2、图 3、图 4 及图 5，本施例主要是用以连接一第一电子卡及一第二电子卡，该第二电子卡较该第一电子卡为薄且窄，该第一、二电子卡的一端设有相同排列的接点，本实施中第一电子卡为如图 1A 所示的大卡 10，第二电子卡则为小卡 15，大卡 10 的接点 11 与小卡 15 的接点 16 排列相同，本实施例是设有一座体、一挡止板 50 及两侧部 60，其中：

[0065] 该座体设有一塑胶底座 20 及一盖合于该塑胶底座上的上盖 40，该塑胶座体 20 是由一前座 21 及一后座 22 组成，该座体内设有第一卡槽 23（参阅图 7 的斜线位置）、第二卡槽 24（参阅图 8 的斜线位置）、第三卡槽 25（参阅图 9 的斜线位置），该三卡槽是为不同宽度或高度且具有共用空间，借以使不同尺寸的电子卡可插入定位，其中第一卡槽 23 是使 XDC 插入定位，第二卡槽 24 是使 SDC 及 MMC 插入定位，第三卡槽 25 是使大卡 10 插入定位，该前座 21 设有一排第四端子 34，该后座 21 设有一排第一端子 31、一排第二端子 32、及一排第三端子 33，该前座 21 及后座 22 的两侧各设有二个卡块 26，另该后座 22 设有第一斜面 27。

[0066] 请配合参阅图 6，该上盖 40 为一金属板材冲压而成，其呈 ㄇ 形状，其设有一顶面 41 及两侧面 42，该两侧面 42 各设有四卡孔 43，其盖合于该塑胶座体 20 上时借由卡孔 43 与塑胶座体 20 的卡块 26 卡合，顶面前段接近两侧各向内冲压两侧片 45 且中间向内冲压凸出一第二斜面 46，该第二斜面 46 与上述的第一斜面 27 为相同倾斜度。

[0067] 该挡止板 50 及两侧部 60 是与上盖 40 一体冲压成形，该挡止板 50 及两侧部 60 自上盖 40 的顶面前端反折向下，该挡止板 50 呈横向延伸于该座体内且具有向上的溢压，其呈一框形体，其中央设有一开口 51 及四周设有两侧边 52 及前、后边 53、54，该前边 53 设有二向开口 51 延伸且具向上溢压的弹片 55，该后边 54 的中段较两侧为窄，借以形成较佳弹性，该两侧部 60 连接于上盖 40 的顶面前端并呈纵向位于该挡止板 50 二侧，该挡止板 50 下方为第一插入口 65，该挡止板 50 上方为第二插入口 66，该第二插入口 66 由挡止板 50、两侧部 60 及上盖 40 的顶面 41 所围成，该两侧部 60 的间距即为第二插入口 66 的宽度，第二插入口 66 的宽度与小卡 15 的宽度相当，其较该第一、二、三卡槽 23、24、25 为窄，另上盖内面的两侧片 45 的间距恰为第二插入口 66 的宽度。

[0068] 请参阅图 10 及图 11，该大卡 10 由挡止板 50 下方的第一插入口 65 插入第三卡槽 25 定位时，大卡 10 上方可抵于该挡止板 50 定位，其前端的接点 11 即与第一端子 31 电连接。

[0069] 请参阅图 12 及图 13，该小卡 15 可由挡止板 50 上方的第二插入口 66 呈向下倾斜插入定位，由于小卡 15 在插入时可借由第二插入口 66 的宽度定位其两侧且由挡止板 50 支撑，并借由第一斜面 27 和第二斜面 46 而呈向下倾斜插入，插入后借由两侧片 45 的间距所形成的轨道前进，其接点 16 可降低而与该第一端子 31 电连接。

[0070] 请参阅图 14 及图 15，由于 mini-SDC18 大致与小卡 15 等宽，若使用者不慎将 mini-SDC18 由第二插入口 66 误插时，由于其连接端一侧设有一缺口 19，该 mini-SDC18 一侧抵压该挡止板 50 一侧边 52，其另一侧因有缺口 19 而未抵压该挡止板另一侧边 52 而掉入该开口 51，如此该挡止板 50 形成一高一低状态，当该 mini-SDC18 继续插入时即抵止于该挡止板 50 的后边 54 的前缘，不致再插入而掉入座体内而无法取出。

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[0071] 由以上的说明，本实用新型在不影响大卡 10 及数种不同卡插入定位条件下，小卡 15 仍能由挡止板 50 上方的第二插入口 66 斜插，借由挡止板 50 支撑定位而稳固的与第一端子 31 电连接。另外，与小卡 15 等宽且较短的 mini-SDC18 纵使不慎由第二插入口 66 误插时，该 mini-SDC18 可借由该挡止板 50 挡止而不致继续插入掉入座体内而无法取出。

[0072] 请参阅图 16、图 17 及图 18，为本实用新型第二实施例，其大致与第一实施例相同，其差异在于该挡止板 50 是为一与上盖 40 分开的金属片，该两侧部 60 是与上盖 40 一体成型，该塑胶座体 20 的前座 21 的前端两侧各设有适当高度的平台 28，该平台上设有一卡块 29，该挡止板 50 的二侧各设有凸出的接合部 56 及凹入的卡孔 57，该前边 53 则仅设有一弹片 55，该挡止板 50 二侧的接合部 56 接合于前座 21 两侧的平台 28，该卡孔 57 与卡块 29 卡定。

[0073] 请参阅图 19，为本实用新型第三实施例，其大致与第二实施例相同，其差异在该挡止板 50 的后边 54 的中段断开呈一缺口 58，借以形成较佳弹性。

[0074] 请参阅图 20 及图 21，为本实用新型第四实施例，其为六种记忆卡共用的连接器，其大致与第一实施例相同，本实施例是设有一座体及一挡止板 50，其中：

[0075] 该座体设有一塑胶底座 20 及一盖合于该塑胶底座上的上盖 40，该塑胶座体 20 设有一分隔板 210 分隔成一上卡槽 211 及一下卡槽 212，该上卡槽 211 可卡定小卡，该下卡槽 212 包括有多个卡槽，该多个卡槽为不同宽度或高度且具有共用空间，借以使不同尺寸的电子卡可插入定位，该下卡槽 212 设有一排第一端子 31、一排第二端子 32、一排第三端子 33 及一排第四端子 34，该上卡槽 211 设有一排第五端子 35。该上卡槽 211 可电连接小卡，该下卡槽 212 可电连接大卡、SDC、XDC、MMC 及 MMC-PLUS。

[0076] 该上盖 40 为一金属板材冲压而成，其呈口形状，其设有一顶面 41 及两侧面 42。

[0077] 该挡止板 50 自该上盖 40 的顶面 41 刺破并由前面后向下倾斜凸出，该挡止板 50 呈一框形体，其中央设有一开口 51 及四周设有两侧边 52 及前、后边 53、54，该前边 53 与上盖 40 相连，该后边 54 的中段较两侧为窄，借以形成较佳弹性。

[0078] 请参阅图 22，该小卡 15 由上槽 211 插入时小卡 15 的宽度可抵于该挡止板 50 的二侧边 52，故该挡止板 50 可为小卡 15 顶起，该小卡 15 可插入而与该第五端子 35 电连接。

[0079] 请参阅图 23，若使用者不慎将 mini-SDC18 由上槽 211 误插时，由于其连接端一侧设有一缺口，该侧因有缺口而未抵压该挡止板一侧边 52 而掉入该开口 51，当该 mini-SDC18 继续插入时即抵止于该挡止板 50 的后边 54 的前缘，不致再插入而掉入座体内无法取出。

[0080] 请参阅图 24、图 25，为本实用新型第五实施例，其为三种记忆卡共用的连接器，其大致与第四实施例相同，其差异在该塑胶座体 20 仅设有一排第一端子 31 及一排第二端子 32，该隔板 210 上设有一排透空槽 214，该第一端子 31 的接点 37 由该隔板 210 上的透空槽 214 凸出至上卡槽 211，该第二端子 32 的接点 38 位于下卡槽 212，该上卡槽 211 可插入子小卡与第一端子 31 电连接，该下卡槽 211 可插入 SDC 或 MMC，两者皆与第二端子 32 电连接。

[0081] 请参阅图 26，为本实用新型第六实施例，其为七种记忆卡共用的连接器，其大致与第四实施例相同，其差异在该上卡槽 211 更设有一排 4 个第六端子 36，该第六端子 36 的接点 310 位于该第五端子 35 的接点 39 的前方，为了易于排设该一排 10 个第五端子 35 及一排 4 个第六端子 36，该 4 个第六端子 36 及其中 4 个第五端子 35' 的板面呈纵向，该上卡槽 211 可电连接小卡及 MSHGC，该下卡槽可电连接大卡、SDC、XDC、MMC 及 MMC-PLUS。

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[0082] 上述实施例是以连接大、小卡的电子卡连接器作说明，然而并非仅局限于此型态的电子卡连接器，举凡电子卡连接器的卡槽内设有挡止板借以达到挡止定位一电子卡，使该电子卡仅能插入至设定位置，如此相关的设计皆为本实用新型的应用。

[0083] 在较佳实施例的详细说明中所提出的具体的实施例仅为了易于说明本实用新型的技术内容，而并非将本实用新型狭义地限制于该实施例，在不超出本实用新型的精神及申请专利范围的情况，可作种种变化实施。

Samsung, EX1019, p. 541

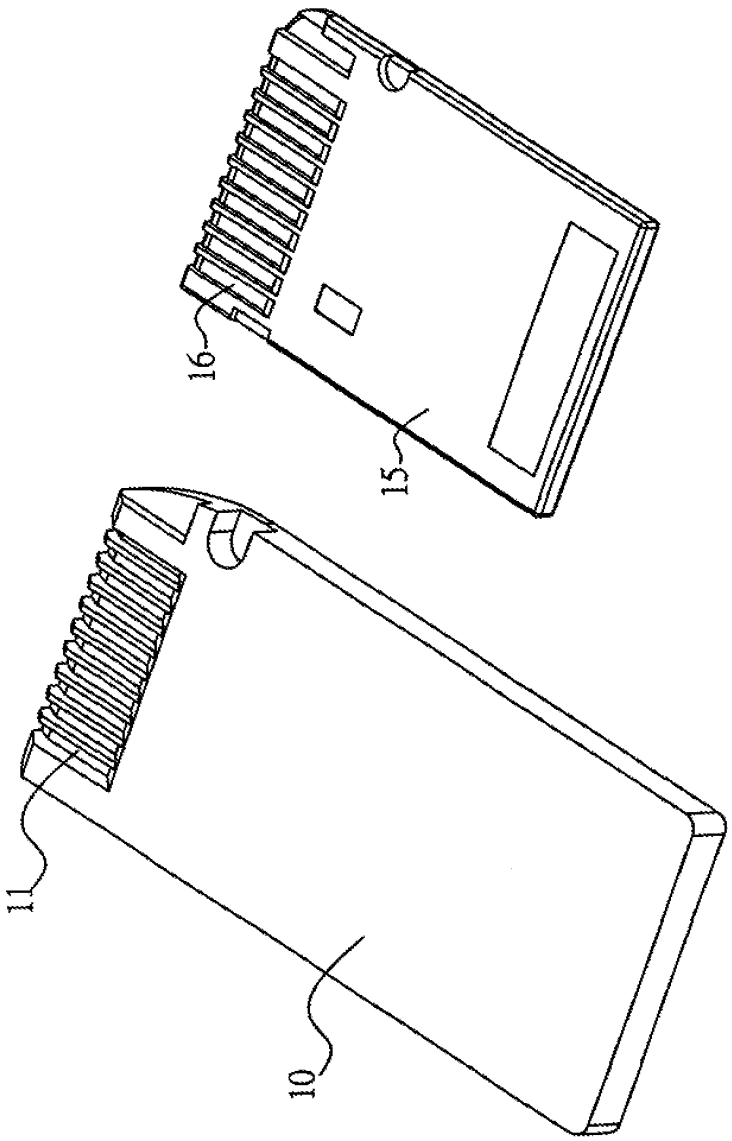


图 1B

图 1A

Samsung, EX1019, p. 542

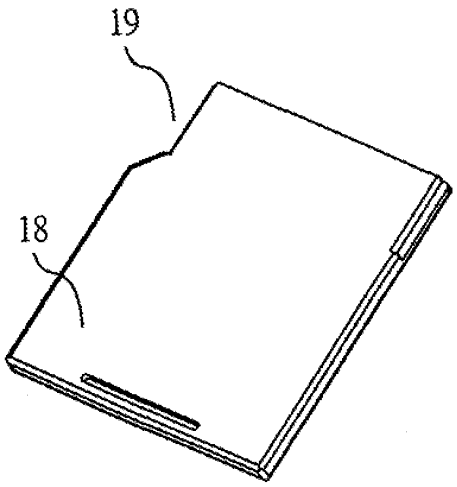


图 1C

Samsung, EX1019, p. 543

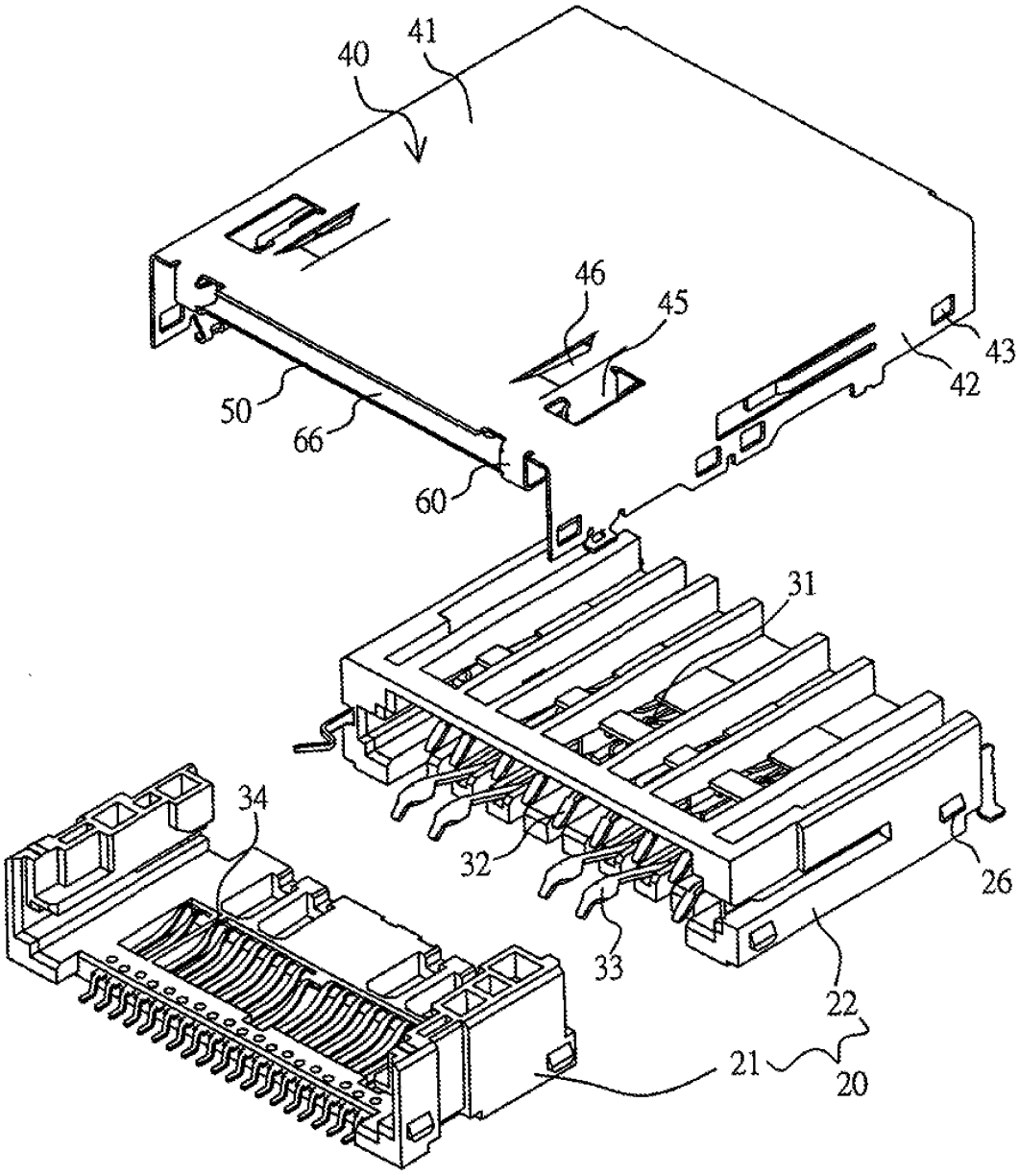


图 2

Samsung, EX1019, p. 544

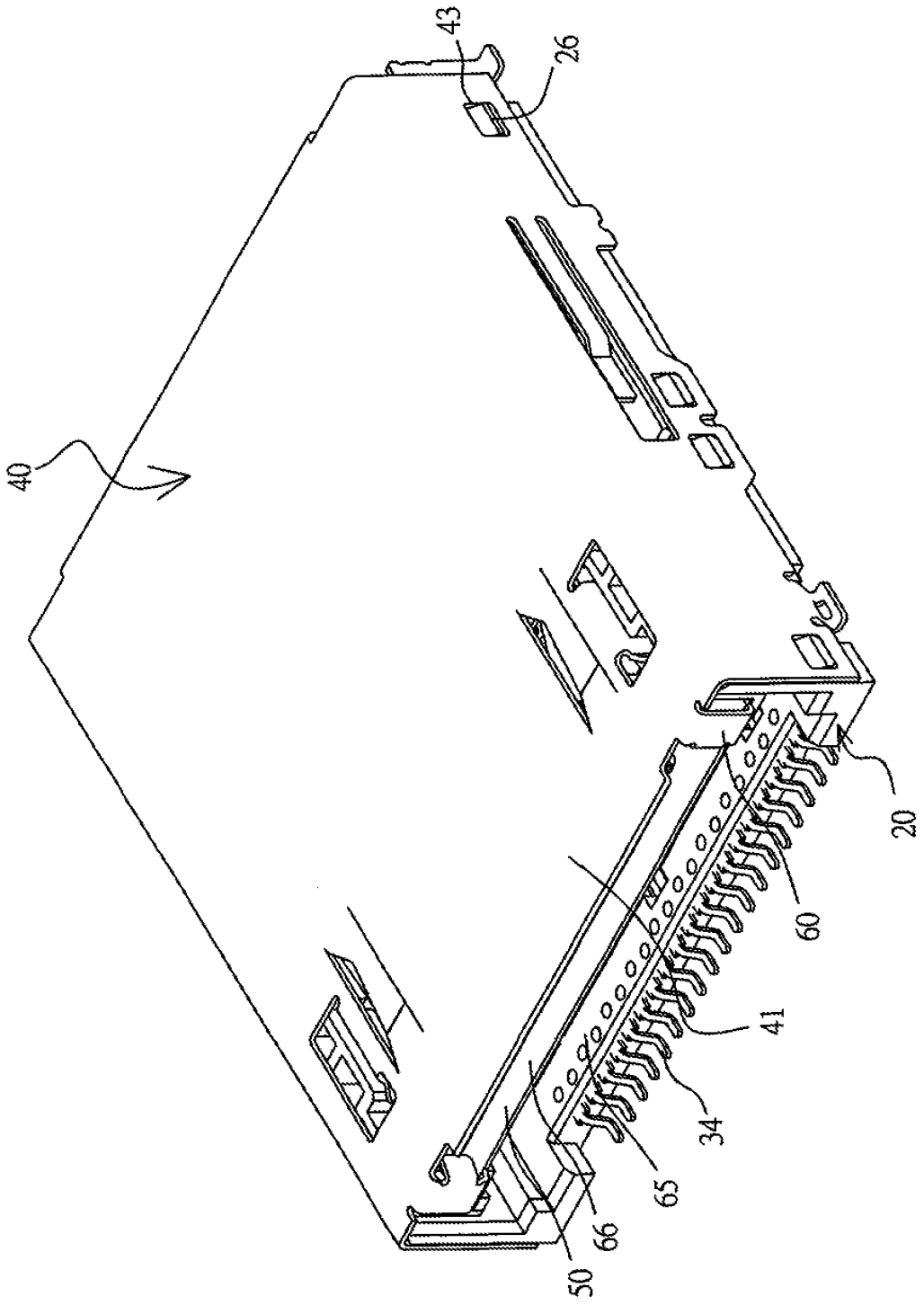


图 3

Samsung, EX1019, p. 545

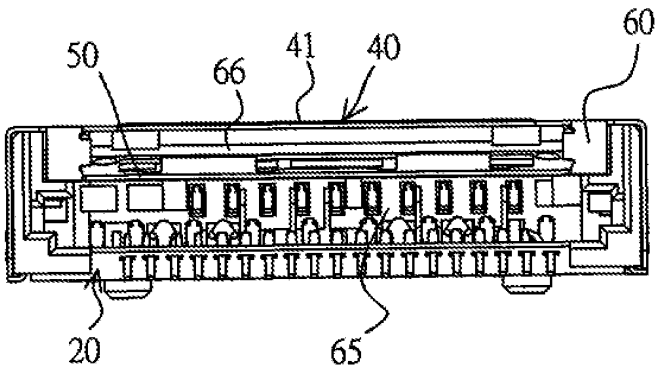


图 4

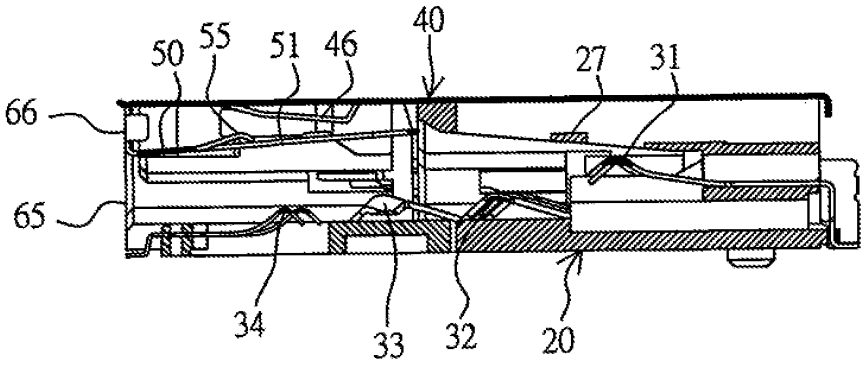


图 5

Samsung, EX1019, p. 546

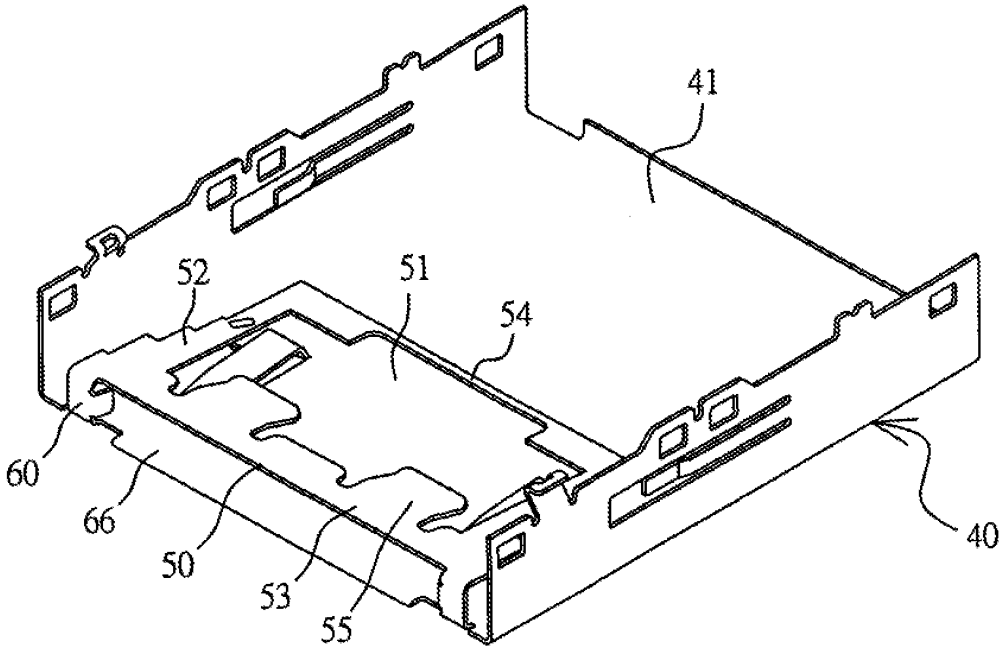


图 6

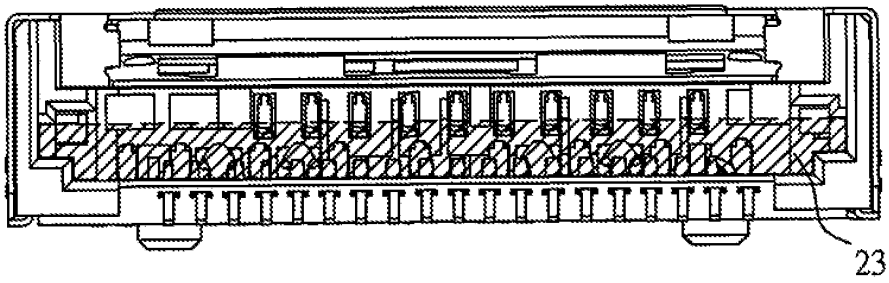


图 7

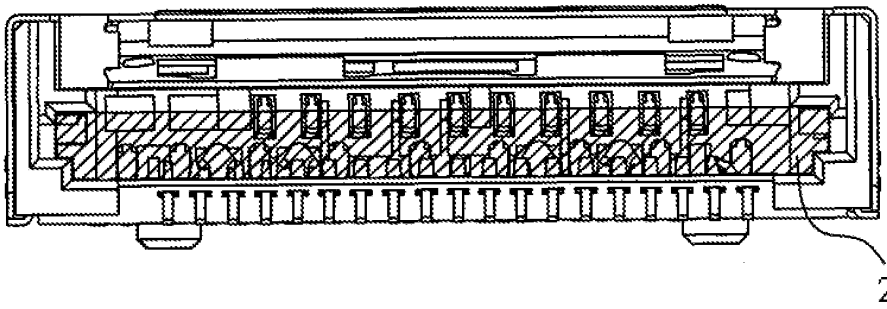


图 8

Samsung, EX1019, p. 547

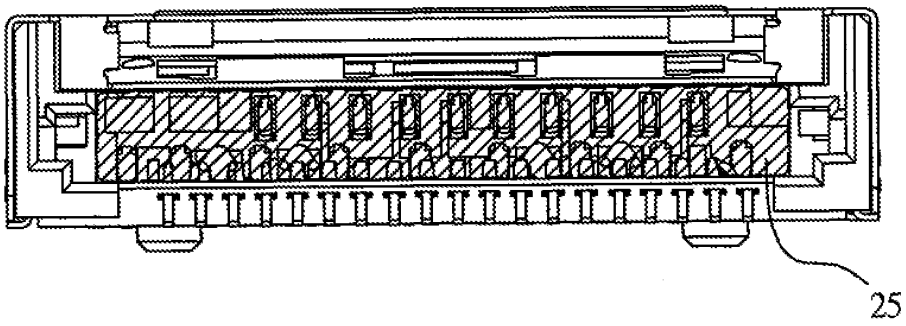


图 9

Samsung, EX1019, p. 548

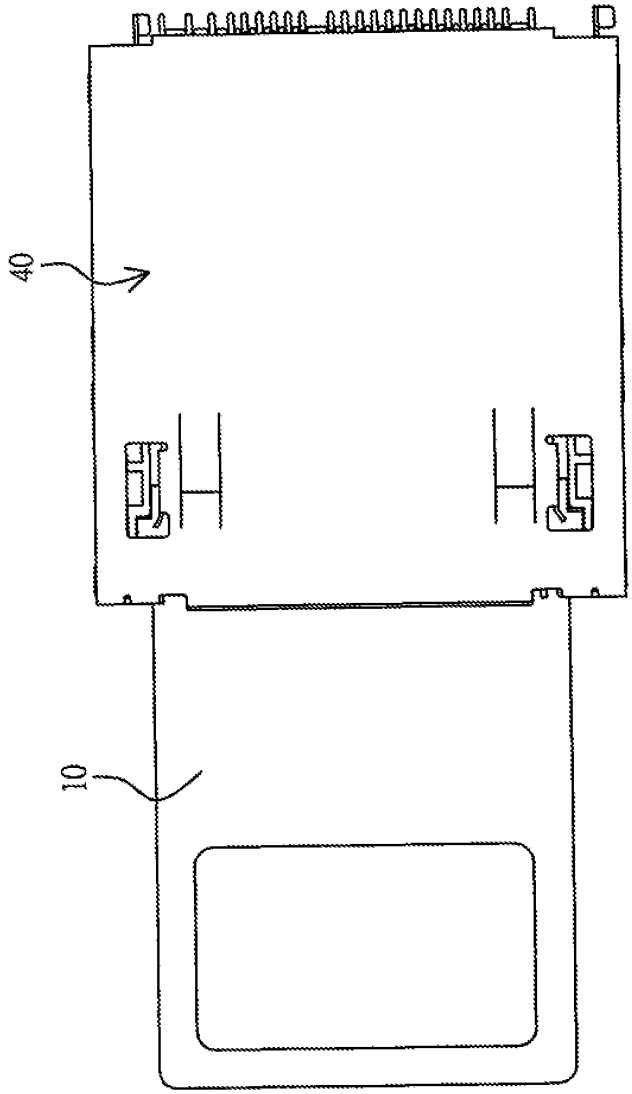


图 10

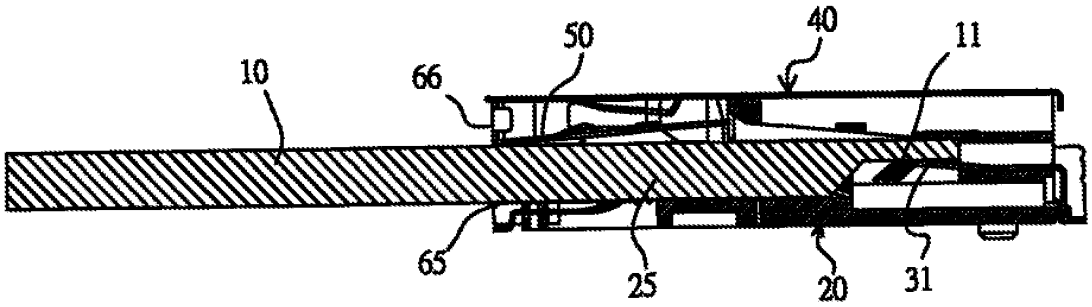


图 11

Samsung, EX1019, p. 549

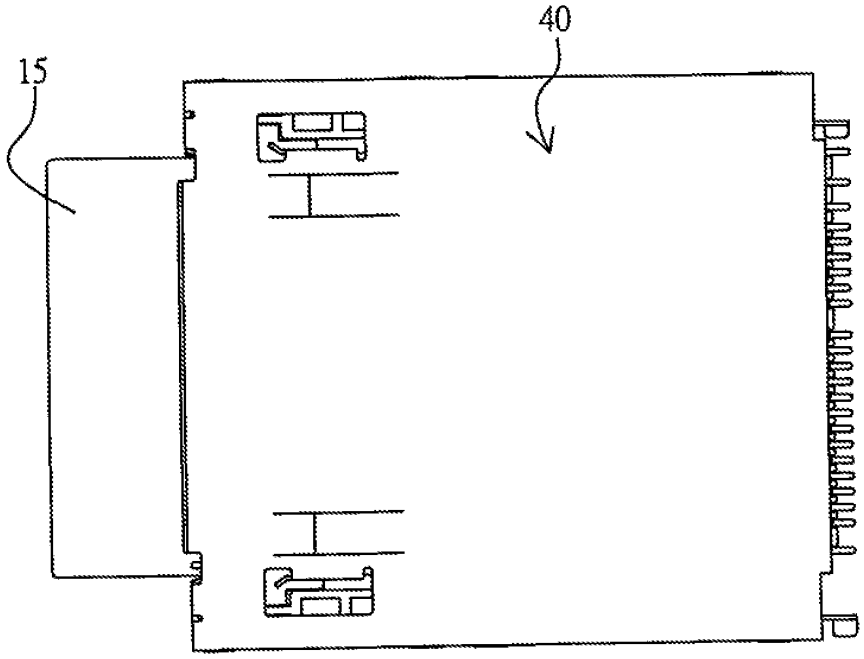


图 12

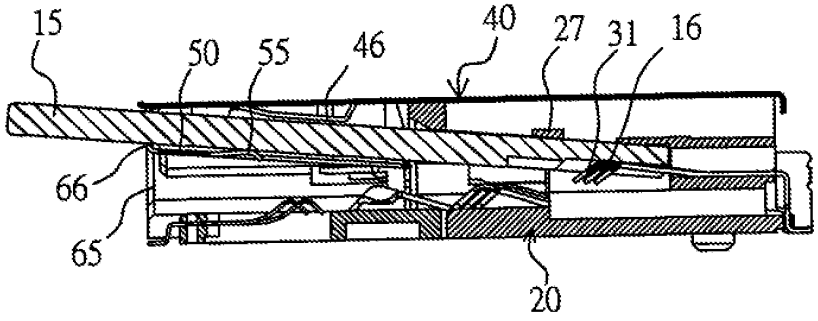


图 13

Samsung, EX1019, p. 550

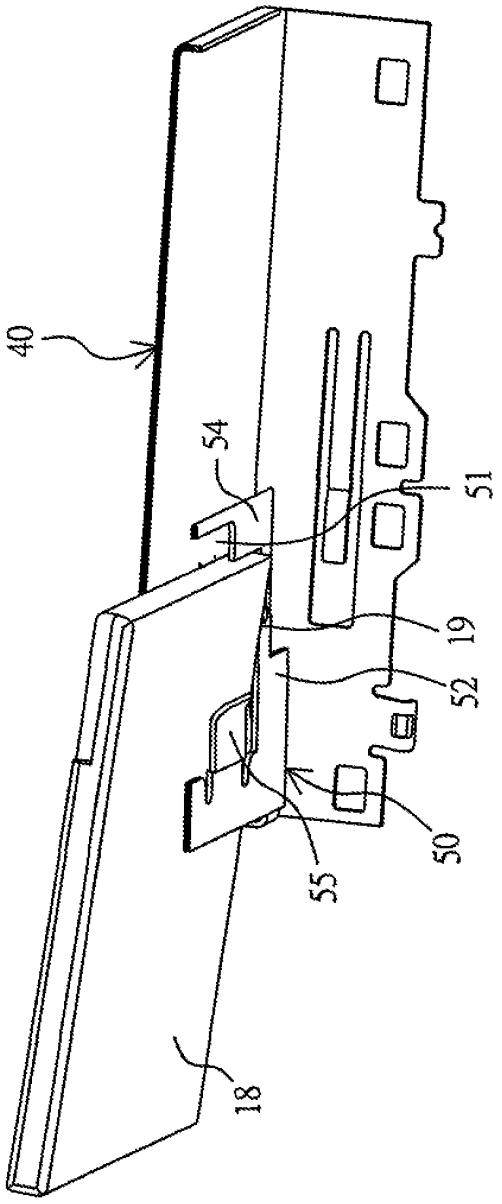


图 14

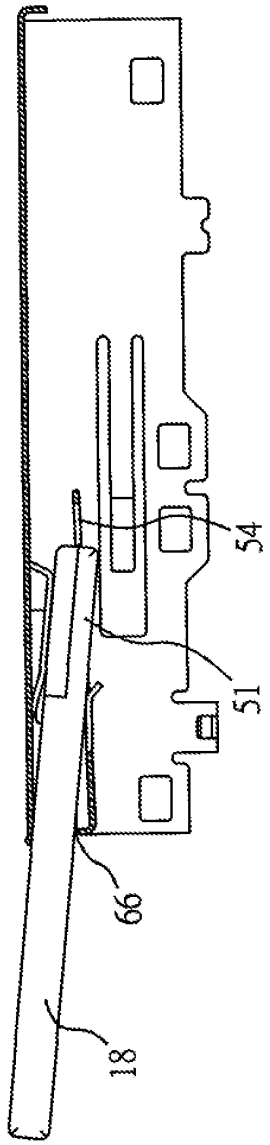


图 15

Samsung, EX1019, p. 551

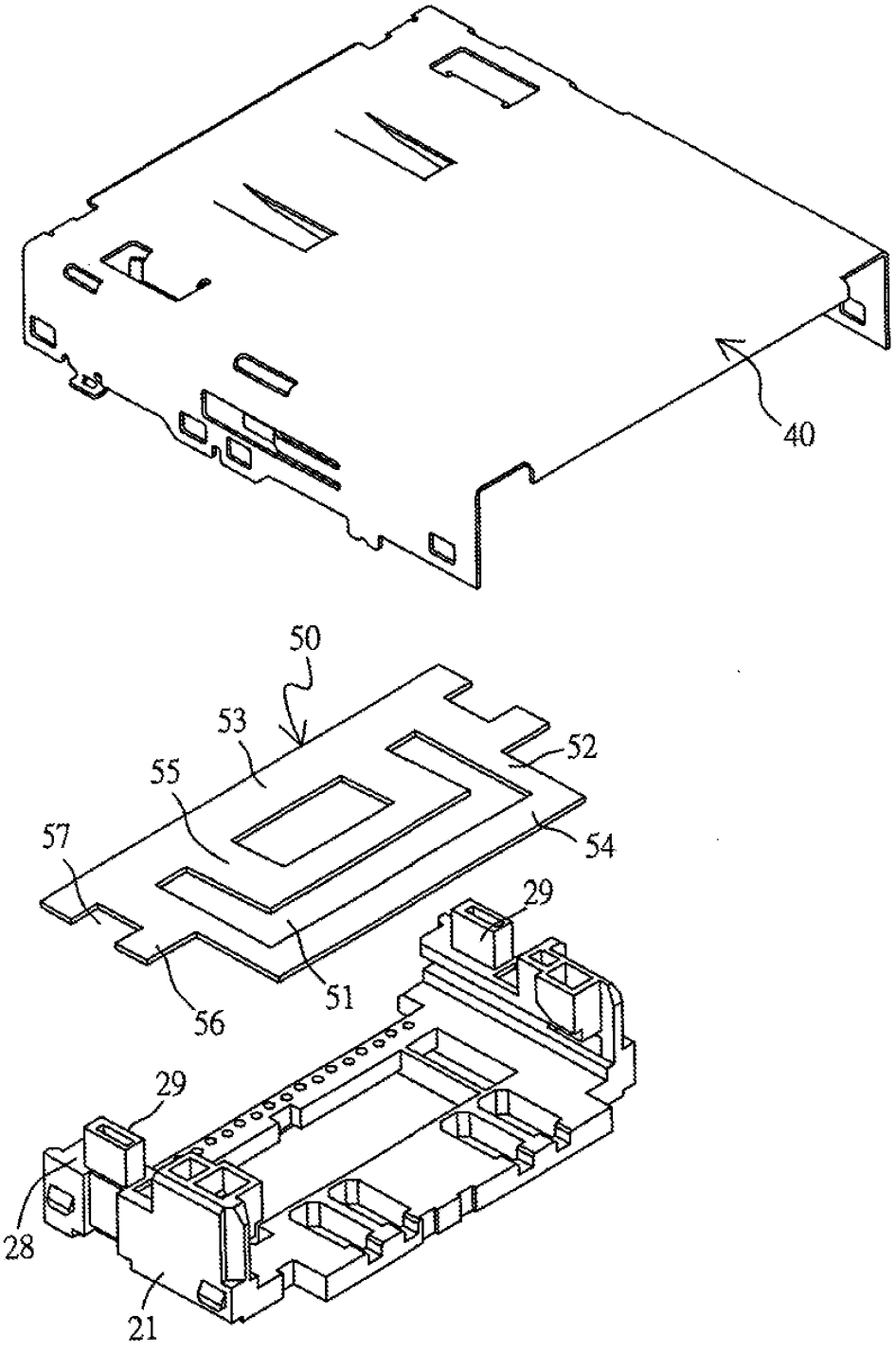


图 16

Samsung, EX1019, p. 552

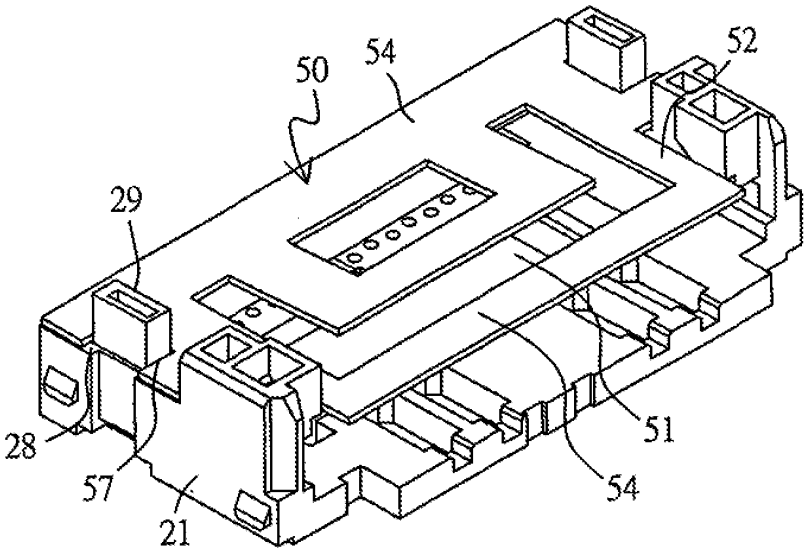


图 17

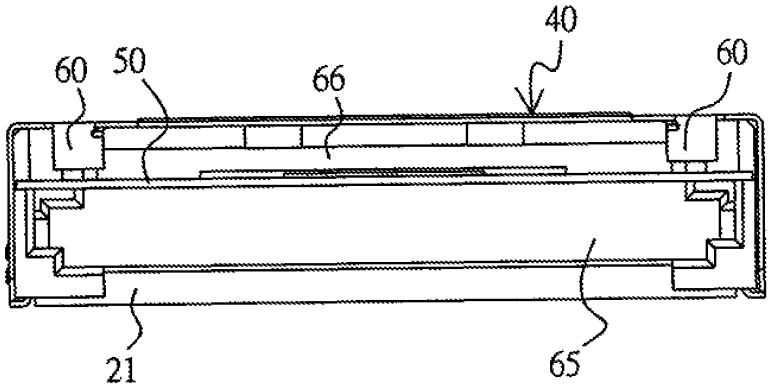


图 18

Samsung, EX1019, p. 553

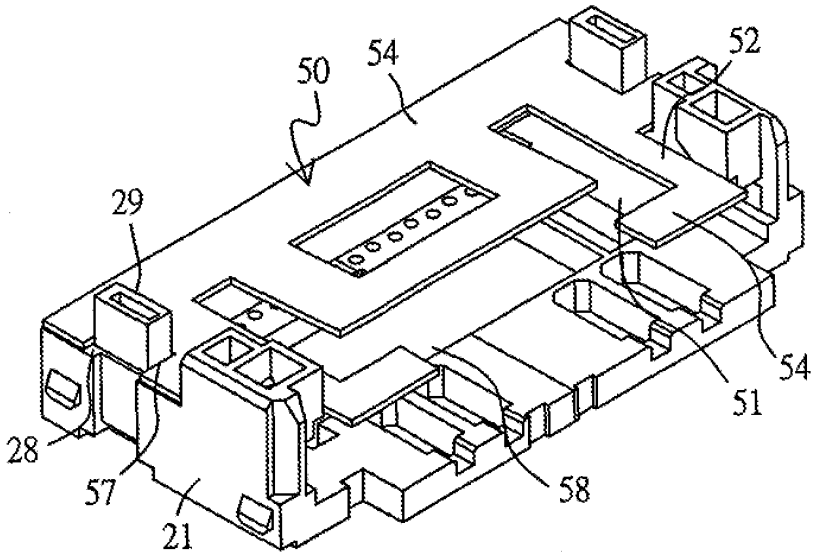


图 19

Samsung, EX1019, p. 554

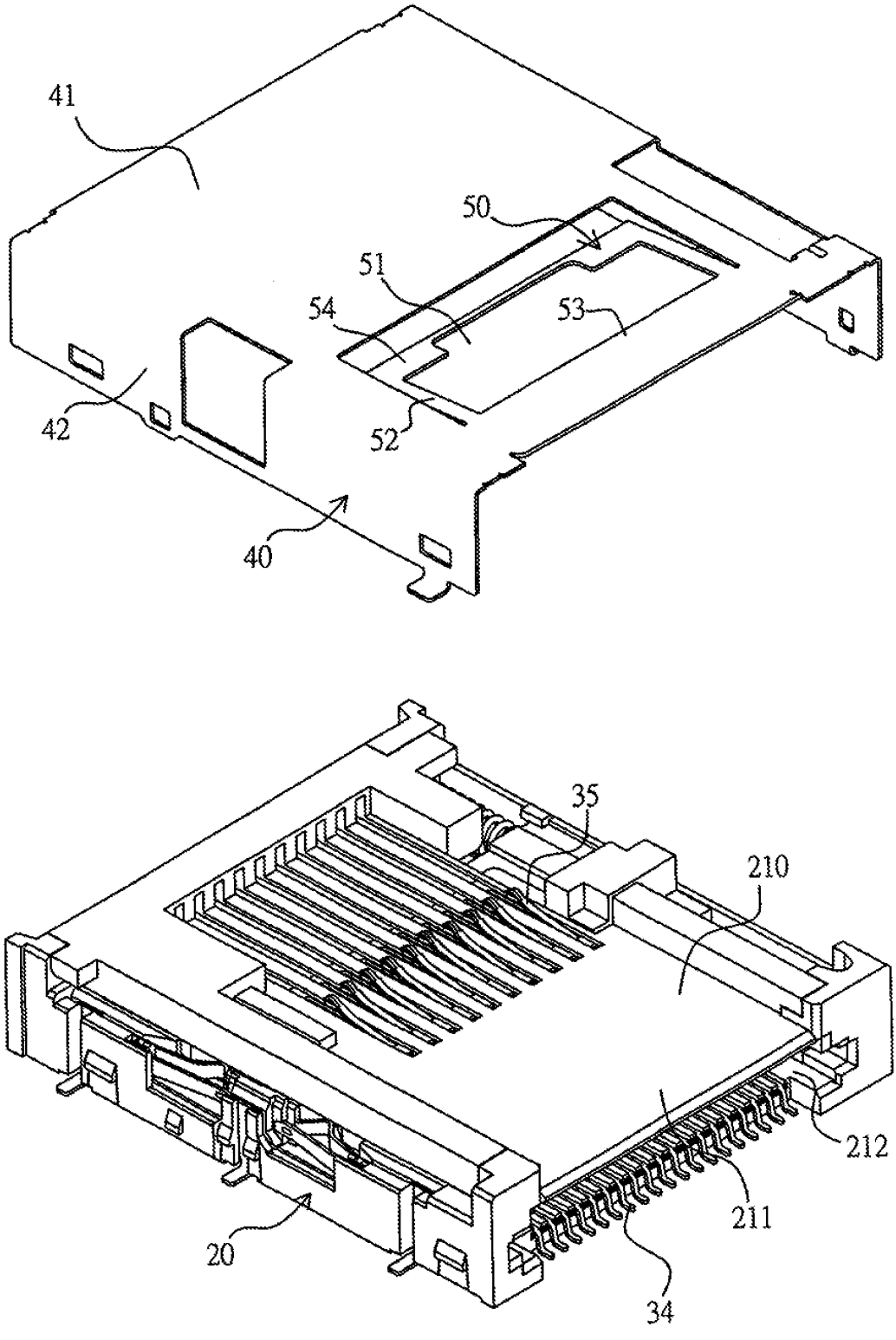


图 20

Samsung, EX1019, p. 555

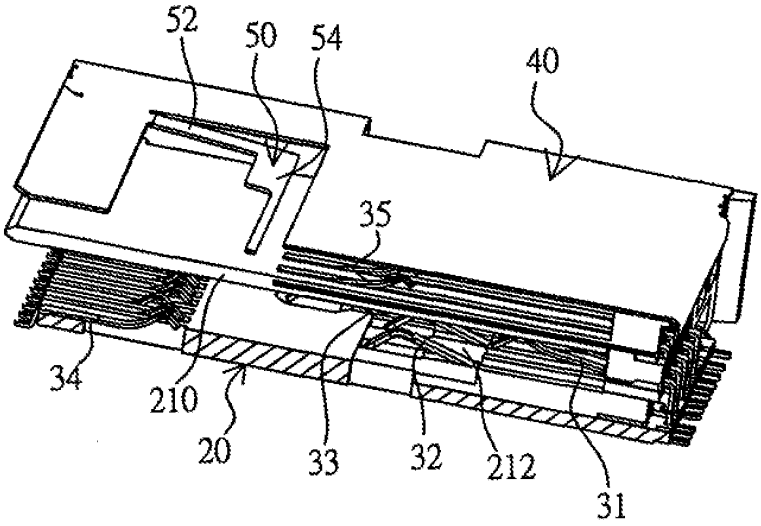


图 21

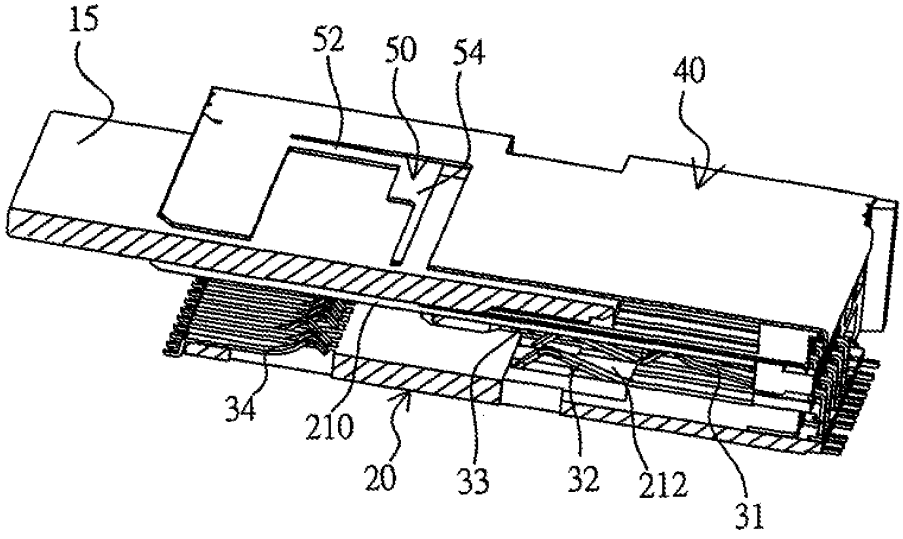


图 22

Samsung, EX1019, p. 556

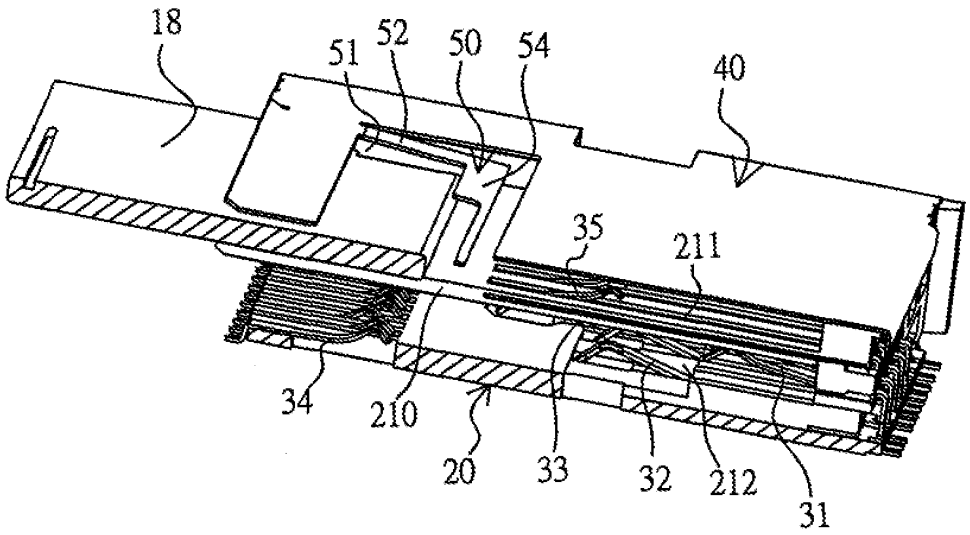


图 23

Samsung, EX1019, p. 557

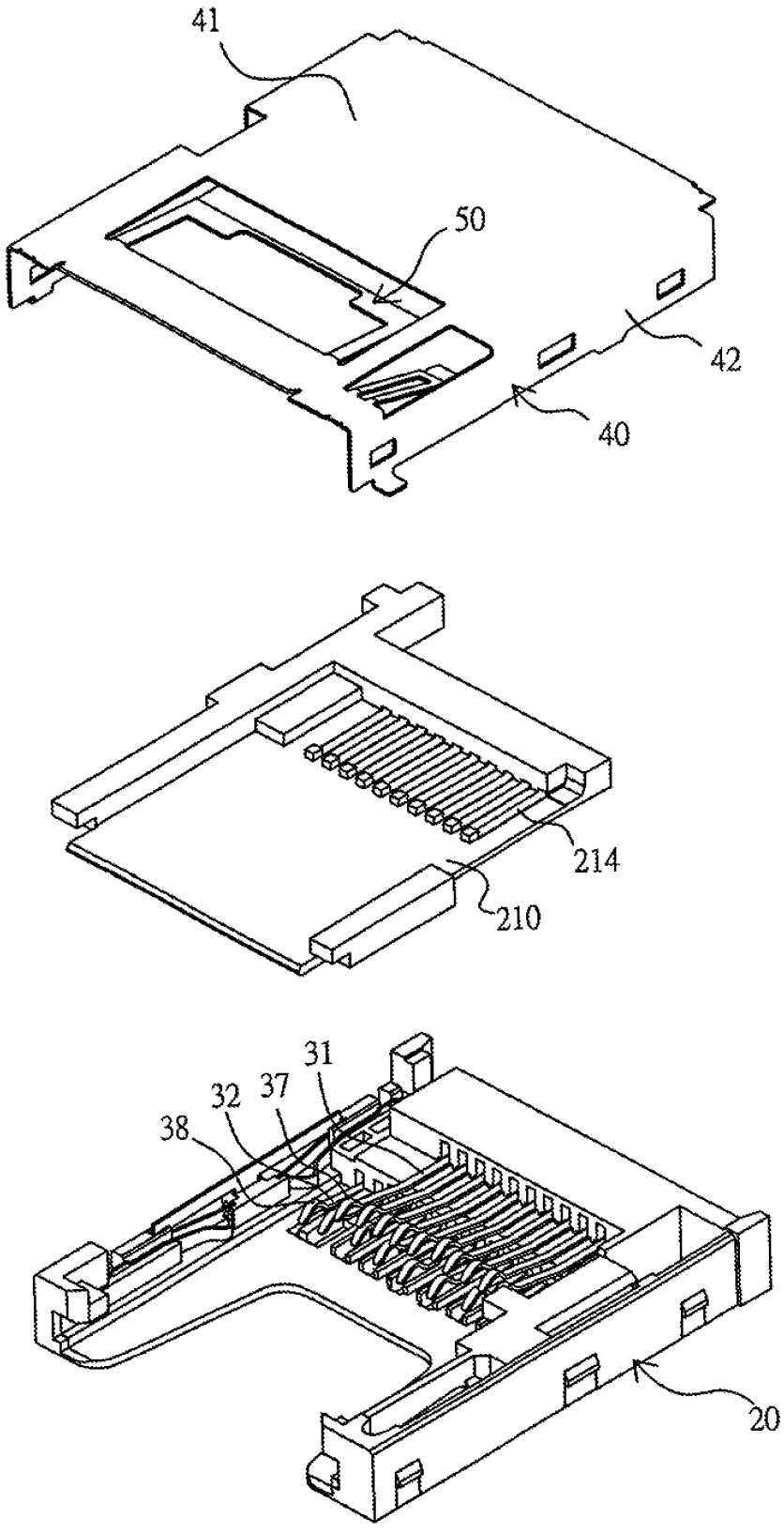


图 24

Samsung, EX1019, p. 558

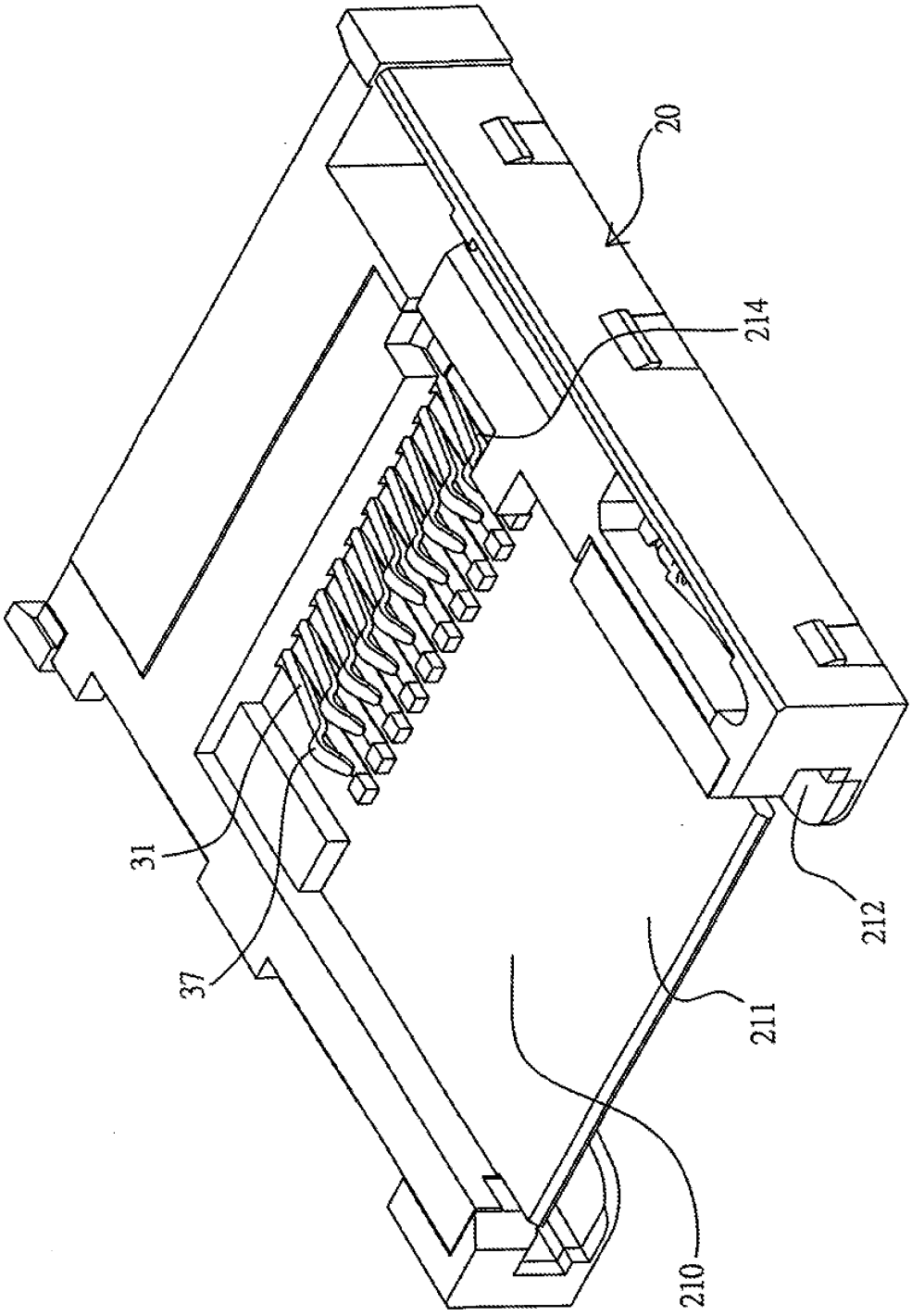


图 25

Samsung, EX1019, p. 559

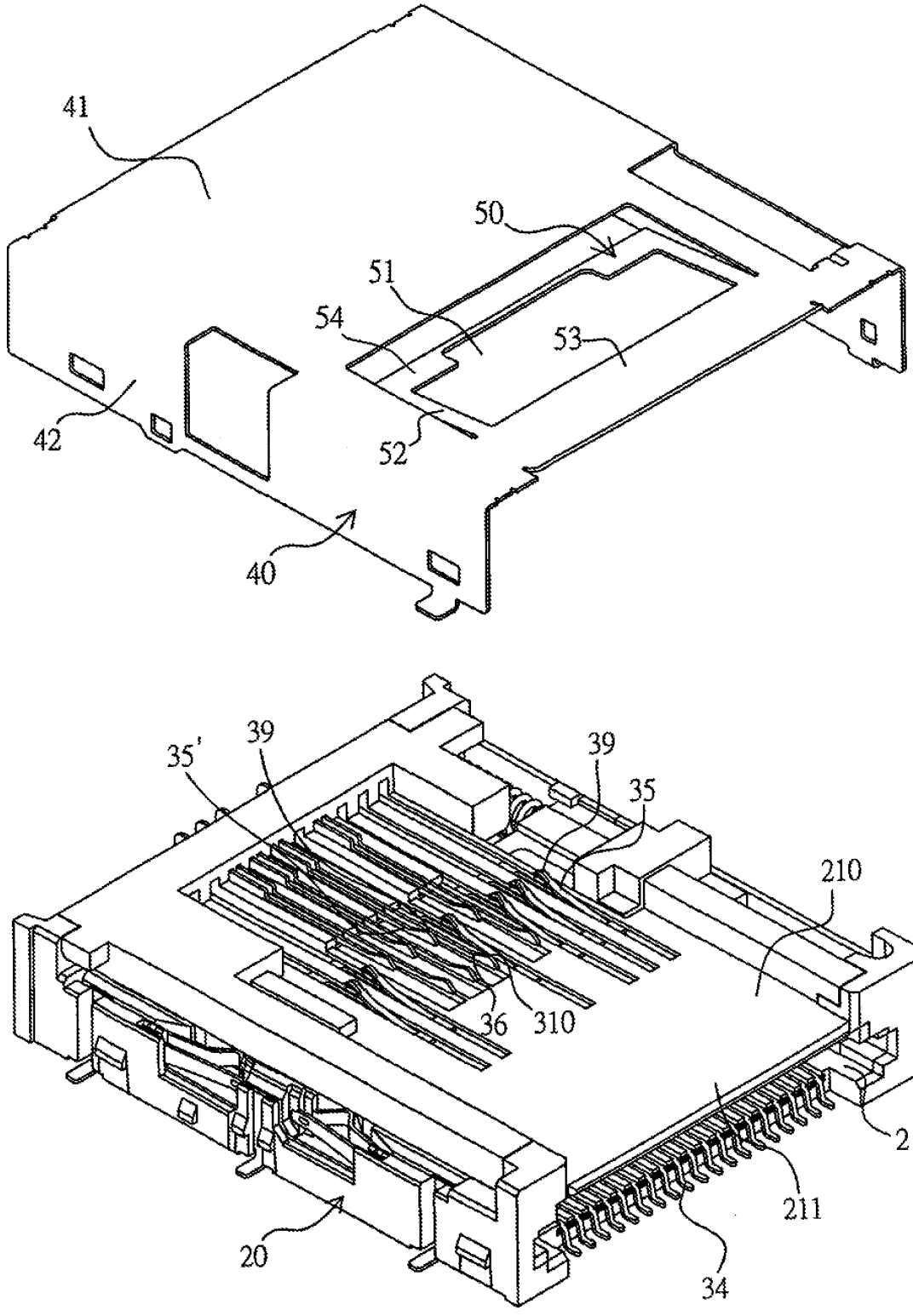


图 26

Samsung, EX1019, p. 560

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Espacenet

CN102013587A Electric connector and terminal structure thereof

Applicants: ZHOUXIAN CAI

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Classifications:
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Electric connector and terminal structure thereof

Abstract

The invention relates to an electric connector and a terminal structure thereof. The electric connector comprises a plastic base body and at least one row of terminals, wherein the plastic base body is internally provided with at least one row of terminal slots; the at least one row of terminals are arranged in the at least one row of terminal slots of the plastic base body; each terminal is provided with an extending part, a fixed part and a pin part from one end to the other end, wherein the fixed part is fixed with the terminal slot, the extending part is horizontally attached to the terminal slot and provided with a connection point, and the pin part extends out of the plastic base body; the at least one row of terminals is one of two rows of terminals formed by oppositely tearing and pressing a metal sheet; each terminal of the two rows of terminals is provided with an oppositely tearing and cutting part, and the oppositely tearing and cutting parts are mutually and seamlessly butted; when one terminal of the one row of terminals is oppositely and reversely connected between two adjacent terminals, the oppositely tearing and cutting part of the terminal is seamlessly connected with the oppositely tearing and cutting parts of the two adjacent terminals; and the oppositely tearing and cutting parts of the at least one row of terminals are the extending parts. In the invention, the extending parts of the two rows of terminals can be butted, arrayed and pressed on the pressing manufacture of the terminals, thereby decreasing the waste materials and reducing the material cost.

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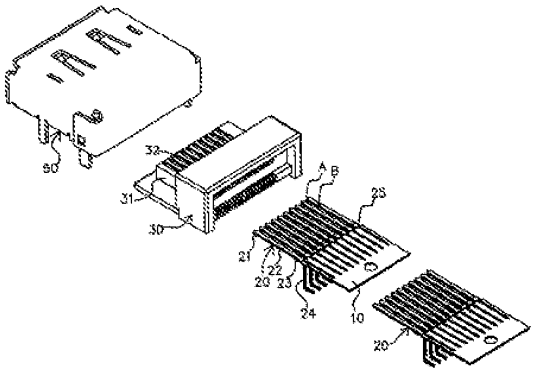
权利要求书 2 页 说明书 8 页 附图 14 页

(54)发明名称

电连接器及其端子构造

(57)摘要

一种电连接器及其端子构造，该电连接器包括有：塑胶座体，其内设有至少一排端子槽；至少一排端子，设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有延伸部、固定部、及接脚部，该固定部与端子槽固定，该延伸部平贴于该端子槽且设有一接点，该接脚部伸出该塑胶座体外；该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，该至少一排端子的对撕冲切部位为延伸部。在端子冲压制造上，二排端子的延伸部可对接排列冲压，减少废料，降低材料成本。



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1. 一种电连接器，包括有：

一塑胶座体，其内设有至少一排端子槽；

至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该固定部与端子槽固定，该延伸部平贴于该端子槽且设有一接点，该接脚部伸出该塑胶座体外；

其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，该至少一排端子的对撕冲切部位为延伸部。

2. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的两相邻端子的延伸部的间距等于该延伸部的宽度。

3. 如权利要求 1 所述的电连接器，其特征在于：该延伸部刺破冲压出一弹片，该弹片设有该接点。

4. 如权利要求 1 所述的电连接器，其特征在于：该塑胶座体设有一舌片，且更设有一金属外壳包覆该塑胶座体，该金属外壳形成一连接槽，该至少一排端子槽延伸至该舌片一面。

5. 如权利要求 4 所述的电连接器，其特征在于：所述电连接器为一 eSATA 连接器，其中该至少一排端子为一排 7 个端子，该一排端子的延伸部长度不一。

6. 如权利要求 4 所述的电连接器，其特征在于：所述电连接器为一 displayport 连接器，其中该舌片的两侧设有向下的凸部，该至少一排端子为二排各 10 个端子，该二排端子的延伸部平贴于该舌片的两面且上下错开，该连接槽一侧的下端较上端为窄面形成一斜面。

7. 如权利要求 4 所述的电连接器，其特征在于：所述电连接器为一 HDMI 连接器，其中该舌片的两侧下端较上端为窄面形成二斜面，该至少一排端子为二排分别为 10 个端子及 9 个端子，该二排端子的延伸部平贴于该舌片的两面且上下错开，该连接槽二侧的下端较上端为窄面形成二斜面。

8. 如权利要求 4 所述的电连接器，其特征在于：所述电连接器为一 USB 连接器，其中该至少一排端子为一排 4 个端子。

9. 如权利要求 1 所述的电连接器，其特征在于：所述电连接器为一电子卡连接器，其设有一连接槽可插入连接一电子卡。

10. 如权利要求 9 所述的电连接器，其特征在于：所述电连接器为一智慧卡连接器，该电子卡为一智慧卡，该至少一排端子为二排端子，该二排端子前后对齐，该二排端子的延伸部宽度为 1.27mm。

11. 一排端子构造，包括有：

一料带；及

多个端子，其是呈间隔排列连接于该料带，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该延伸部的板面呈水平延伸且设有一接点；

其特征在于：该一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子其中一端子反向且反

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面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，该至少一排端子的对撕冲切部位为延伸部。

12. 如权利要求 1 所述的一排端子构造，其特征在于：该至少一排端子的两相邻端子的延伸部的间距等于该延伸部的宽度。

13. 如权利要求 1 所述的一排端子构造，其特征在于：该延伸部刺破冲压出一弹片，该弹片设有该接点。

14. 如权利要求 1 所述的一排端子构造，其特征在于：该固定部后端中间连接该接脚部，该固定部后端两侧连接该料带且该处设有易于折断的切痕。

15. 二排端子构造，其为一金属片对撕冲压面形成，其包括有：

一第一排端子，其设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该延伸部的板面呈水平延伸且设有一接点，该每一端子的延伸部为对撕冲切部位；

一第二排端子，其设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该延伸部的板面呈水平延伸且设有一接点，该每一端子的延伸部为对撕冲切部位；

该第一、二排端子是呈反向对接，该第一排端子的各端子的对撕冲切部位无缝接合于该第二排端子的两相邻端子的对撕冲切部位的间隔区域。

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电连接器及其端子构造

【技术领域】

[0001] 本发明是有关于一种电连接器，特别是关于一种端子在冲压制造上非常节省材料的电连接器。

【背景技术】

[0002] 电连接器的端子在制造上是以金属片冲压，冲压完成的端子是依电连接器的端子间距而间隔排列连接于一料带上，如此整排的端子可一次组装在电连接器的塑胶座体上。

[0003] 上述整排连续排列端子在冲压制造上，两相邻端子的间隔区域则是金属片打掉材料而形成，故此部份则成废料，因此，若要节省端子冲压上的成本则需减少废料形成。

【发明内容】

[0004] 本发明的主要目的在于提供一种电连接器，其在端子冲压制造上，二排端子的延伸部可无缝隙对接排列冲压，达到制造上节省材料，降低制造成本。

[0005] 为达上述目的，本发明电连接器包括有：一塑胶座体，其内设有至少一排端子槽；至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该固定部与端子槽固定，该延伸部平贴于该端子槽且设有一接点，该接脚部伸出该塑胶座体外；其特征在于该至少一排端子是为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，该至少一排端子的对撕冲切部位为延伸部。

[0006] 承接上述，本发明提供一种电连接器，包括有：

[0007] 一塑胶座体，其内设有至少一排端子槽；

[0008] 至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该固定部与端子槽固定，该延伸部平贴于该端子槽且设有一接点，该接脚部伸出该塑胶座体外；

[0009] 其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，该至少一排端子的对撕冲切部位为延伸部。

[0010] 所述的电连接器，其特征在于：该至少一排端子的两相邻端子的延伸部的间距等于该延伸部的宽度。

[0011] 所述的电连接器，其特征在于：该延伸部刺破冲压出一弹片，该弹片设有该接点。

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[0012] 所述的电连接器，其特征在于：该塑胶座体设有一舌片，且更设有一金属外壳包覆该塑胶座体，该金属外壳形成一连接槽，该至少一排端子槽延伸至该舌片一面。

[0013] 所述的电连接器，其特征在于：所述电连接器为一 eSATA 连接器，其中该至少一排端子为一排 7 个端子，该一排端子的延伸部长度不一。

[0014] 所述的电连接器，其特征在于：所述电连接器为一 display port 连接器，其中该舌片的两侧设有向下的凸部，该至少一排端子为二排各 10 个端子，该二排端子的延伸部平贴于该舌片的两面且上下错开，该连接槽一侧的下端较上端为窄面形成一斜面。

[0015] 所述的电连接器，其特征在于：所述电连接器为一 HDMI 连接器，其中该舌片的两侧下端较上端为窄面形成二斜面，该至少一排端子为二排分别为 10 个端子及 9 个端子，该二排端子的延伸部平贴于该舌片的两面且上下错开，该连接槽二侧的下端较上端为窄面形成二斜面。

[0016] 所述的电连接器，其特征在于：所述电连接器为一 USB 连接器，其中该至少一排端子为一排 4 个端子。

[0017] 所述的电连接器，其特征在于：所述电连接器为一电子卡连接器，其设有一连接槽可插入连接一电子卡。

[0018] 所述的电连接器，其特征在于：所述电连接器为一智慧卡连接器，该电子卡为一智慧卡，该至少一排端子为二排端子，该二排端子前后对齐，该二排端子的延伸部宽度为 1.27mm。

[0019] 本发明还提供一种一排端子构造，包括有：

[0020] 一料带；及

[0021] 多个端子，其是呈间隔排列连接于该料带，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该延伸部的板面呈水平延伸且设有一接点；

[0022] 其特征在于：该一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，该至少一排端子的对撕冲切部位为延伸部。

[0023] 所述的一排端子构造，其特征在于：该至少一排端子的两相邻端子的延伸部的间距等于该延伸部的宽度。

[0024] 所述的一排端子构造，其特征在于：该延伸部刺破冲压出一弹片，该弹片设有该接点。

[0025] 所述的一排端子构造，其特征在于：该固定部后端中间连接该接脚部，该固定部后端两侧连接该料带且该处设有易于折断的切痕。

[0026] 本发明还提供一种二排端子构造，其为一金属片对撕冲压而形成，其包括有：

[0027] 一第一排端子，其设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该延伸部的板面呈水平延伸且设有一接点、该每一端子的延伸部为对撕冲切部位；

[0028] 一第二排端子，其设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一延伸部、一固定部、及一接脚部，该延伸部的板面呈水平延伸且设有一接点，该每一端子的延伸部为对撕冲切部位；

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[0029] 该第一、二排端子是呈反向对接，该第一排端子的各端子的对撕冲切部位无缝接合于该第二排端子的两相邻端子的对撕冲切部位的间隔区域。

[0030] 借由以上构造，在端子冲压制造上，二排端子的延伸部可对接排列冲压，达到减少废料，降低材料成本。

[0031] 本发明的上述及其他目的、优点和特色由以下较佳实施例的详细说明中并参考图式当可更加明白，其中：

【附图说明】

[0032] 图 1 是本发明第一实施例的立体分解图。

[0033] 图 2 是本发明第一实施例的立体组合图。

[0034] 图 3 是本发明第一实施例的侧视剖面图。

[0035] 图 4 是本发明第一实施例的端子冲压制造流程示意图。

[0036] 图 5 是本发明第一实施例的端子冲压制造示意图。

[0037] 图 6 是本发明第一实施例的二排端子的延伸部的切断面示意图。

[0038] 图 7 是本发明第一实施例的第一排端子的其中一端子成反面反向接合于两端子之间时其延伸部的切断面示意图。

[0039] 图 8 是本发明第一实施例的第一排端子的其中一端子成正面反向接合于两端子之间时其延伸部的切断面示意图。

[0040] 图 9 是本发明第二实施例的立体组合图。

[0041] 图 10 是本发明第三实施例的立体组合图。

[0042] 图 11 是本发明第三实施例的侧视剖面图。

[0043] 图 12 是本发明第三实施例的端子冲压制造流程示意图。

[0044] 图 13 是本发明第四实施例的端子冲压制造流程示意图。

[0045] 图 14 是本发明第五实施例的立体分解图。

[0046] 图 15 是本发明第五实施例的端子冲压制造流程示意图。

[0047] 图 16 是本发明第六实施例的立体分解图。

[0048] 图 17 是本发明第六实施例的端子立体图。

[0049] 图 18 是本发明第六实施例的侧视剖面图。

[0050] 图 19 是本发明第六实施例的端子冲压制造流程示意图。

[0051] 图 20 是本发明第七实施例的立体分解图。

[0052] 图 21 是本发明第七实施例的侧视剖面图。

[0053] 图 22 是本发明第七实施例的端子冲压制造立体图。

[0054] 图 23 是本发明第七实施例的端子冲压制造立体图。

[0055] 料带 10 端子 20 接点 21 延伸部 22

[0056] 固定部 23 接脚部 24 切痕 25 弹片 26

[0057] 倒刺 27 塑胶座体 30 舌片 31 端子槽 32 凸部 33

[0058] 连接槽 34 底座 36 上盖 37

[0059] 插入口 38 后盖 39

[0060] 第一端子 40 延伸部 41 固定部 42 接脚部 43

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[0061] 弹片 44 接点 45 开关端子 48、49

[0062] 第二端子 50 延伸部 51 固定部 52 接脚部 53

[0063] 弹片 54 接点 55

[0064] 金属外壳 60 斜边 62 金属上盖 65

[0065] 第一排端子 1 第二排端子 2 间距 A 宽度 B

【具体实施方式】

[0066] 请参阅图 1、图 2 及图 3，本实施例为一种 display port 连接器，其包括有：一塑胶座体 30、二排端子 20 及一金属外壳 60，其中：

[0067] 该塑胶座体 30 设有一舌片 31 及二排间隔排列的端子槽 32，该舌片 31 向前延伸凸出且其两侧设有向下的凸部 32，该两排端子槽 32 分别延伸至舌片 31 的两面且上下错开。

[0068] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 32，每一排端子 20 共计有 10 个呈间隔排列连接于一料带 10，该一排端子 20 组装于一排端子槽 32 后再将该料带 10 折断分离，该端子 20 由前端至后端设有一延伸部 22、一固定部 23 及一接脚部 24；该固定部 23 后端中间连接该接脚部 24，该固定部 23 后端两侧连接该料带 10 且该处设有易于折断的切痕 25，该固定部 23 的宽度较该延伸部 22 的宽度和接脚部 24 的宽度为宽，该固定部 23 与端子槽 32 卡定；该延伸部 22 平贴于该端子槽 32 且前端设有一接点 21，该接脚部 24 伸出该塑胶座体 30 下端，该二排端子 20 的延伸部 22 平贴于该舌片 31 的两面且上下错开。

[0069] 该金属外壳 60 包覆该塑胶座体 30，该金属外壳 60 前段形成一连接槽 34，该连接槽 34 是下端较上端为窄且一侧形成一斜边 62，该舌片 31 位于该连接槽 34 中。

[0070] 该二排端子 20 皆为一金属片对撕冲压所形成二排端子的其中一排端子，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子 20 其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子 20 的对撕冲切部位与二相邻端子 20 的对撕冲切部位无缝接合，该二排端子 20 的对撕冲切部位为延伸部 22，两相邻端子的延伸部 22 的间距 A 等于该延伸部 22 的宽度 B。

[0071] 借由以上构造，端子在冲压制造上如图 4 所示，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于两相邻端子 20 的延伸部 22 的间距 A 等于该延伸部 22 的宽度 B，故第一排端子 1 的各端子 20 的延伸部 22 无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折接脚部 24。

[0072] 上述端子在制造上，二排端子对接冲压时由于二排端子的延伸部是为无缝接合，而该延伸部 22 的长度占整体端子很大比率，故在制造上明显可节省材料，降低制造成本。

[0073] 请参阅图 5 及图 6，本发明以一片金属片作对撕冲压时，由于模具的上模 31 的宽度 s 必然较下模 32 的冲孔 33 的宽度 b 为小，由于第一排端子 1 的端子 20 的延伸部与第二排端子 2 的端子 20 的延伸部无缝对撕，故冲压后第一排端子 1 的端子 20 的延伸部的切断面的上段形成光滑面 36 而下段形成毛边 37，然而第二排端子 2 的端子 20 的延伸部的切

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断面则是下段形成光滑面 36 而上段形成毛边 37，第一排端子 1 的端子 20 与第二排端子 2 的端子 20 接合时两者延伸部的切断面相互为毛边 37 接合光滑面 36，故可成成密合连接。

[0074] 如此冲压后第一排端子 1 的端子 20 的延伸部上面宽度与第二排端子 2 的端子 20 的延伸部下面宽度均为 b，而第一排端子 1 的端子 20 的延伸部下面宽度与第二排端子 2 的端子 20 的延伸部上面宽度均为 s，b 较 s 稍大，意即第一排端子 1 的端子 20 成反面时延伸部的切断面即与第二排端子 2 的端子 20 的延伸部的切断面相同。

[0075] 请参阅图 7，第一排端子 1 其中一端子 20' 成反面反向接合于两端子之间时其延伸部的切断面与该两相邻端子 20 的延伸部的切断面是相互为毛边 37 接合光滑面 36，故可成密合连接。

[0076] 请参阅图 8，第一排端子 1 其中一端子 20' 成同面反向接合于两端子之间时其延伸部的切断面与该两相邻端子 20 的延伸部的切断面是相互为光滑面 36 接合光滑面 36，故无法密合连接。

[0077] 请参阅图 9，是为本发明第二实施例，其为一高清晰度多媒体介面 (High Definition Multimedia Interface，简称 HDMI) 连接器，其大致与第一实施例相同，其差异在于本实施例的连接槽 34 是下端较上端为窄且两侧形成二斜边 62，且舌片 31 的两侧未设有向下的凸部，该二排端子 20 为二排分别为 10 个端子及 9 个端子，该二排端子 20 的延伸部 22 平贴于该舌片 31 的两面且上下错开。

[0078] 请参阅图 10、图 11 及图 12，是为本发明第三实施例，其是为一序列先进附加技术 (External Serial ATA，简称 eSATA) 连接器，其包括有：一塑胶座体 30、一排端子 20、及一金属外壳 60，其中：

[0079] 该塑胶座体 30 设有一舌片 31 及一排间隔排列的端子槽 32，该舌片 31 向前延伸凸出，该一排端子槽 32 延伸至舌片 31 的上面。

[0080] 该一排端子 20 设于该塑胶座体 30 的二排端子槽 32，每一排端子 20 共计有 7 个呈间隔排列连接于一料带 10，该一排端子 20 组装于一排端子槽 32 后再将该料带 10 折断分离，该端子 20 由前端至后端设有一延伸部 22、一固定部 23 及一接脚部 24；该固定部 23 后端连接该料带 10 且该处设有易于折断的切痕，该固定部 23 的宽度较该延伸部 22 的宽度和接脚部 24 的宽度为宽，该固定部 23 与端子槽 32 的卡定；该延伸部 22 平贴于该端子槽 32 且前端设有一接点 21，该接脚部 24 伸出该塑胶座体 30 下端，该一排端子 20 的延伸部 22 长短不一，是形成三长四短。

[0081] 该金属外壳 60 包覆该塑胶座体 30，该金属外壳 60 前段与该塑胶座体 30 形成一连接槽 34，该舌片 31 位于该连接槽 34 中。

[0082] 该一排端子 20 为一金属片对撕冲压所形成二排端子的其中一排端子，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子 20 其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子 20 的对撕冲切部位与二相邻端子 20 的对撕冲切部位无缝接合，该一排端子 20 的对撕冲切部位为延伸部 22，两相邻端子的延伸部 22 的间距 A 等于该延伸部 22 的宽度 B。

[0083] 借由以上构造，端子在冲压制造上如图 12 所示，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于两相邻端子 20 的延伸部 22 的间距 A 等于该延伸部 22 的宽度 B，故第一排端子 1 的各端子 20 的延伸部 22 无缝隙对接于第二排端子 2 的两相邻

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端子 20 的延伸部 22 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折接脚部 24。

[0084] 请参阅图 13，是为本发明第四实施例，其大致与第三实施例相同，其差异在于本实施例的延伸部 22 并非整体为对撕冲切部位，即局部为对撕冲切部位，局部为非对撕冲切部位，故第一排端子 1 的各端子 20 的延伸部 22 对接于第二排端子 2 的两相邻端子 20 的延伸部 22 之间时，局部为无缝接合，局部形成间隙 29。

[0085] 请参阅图 14 及图 15，是为本发明第五实施例，其为一种通用串行总线 (Universal Serial Bus，简称 USB) 连接器，其包括有：一塑胶座体 30、一排端子 20 及一金属外壳 60，其中：

[0086] 该塑胶座体 30 设有一舌片 31 及一排间隔排列的端子槽 32，该舌片 31 向前延伸凸出，该一排端子槽 32 分别延伸至舌片 31 的上面，另设有一后盖 39 由下而上盖合于该塑胶座体 30 后端。

[0087] 该一排端子 20 设于该塑胶座体 30 的一排端子槽 32，每一排端子 20 共计有 4 个呈间隔排列连接于一料带 10，该一排端子 20 组装于一排端子槽 32 后再将该料带 10 折断分离，该端子 20 由前端至后端设有一延伸部 22、一固定部 23 及一接脚部 24；该固定部 23 后端连接该料带 10 且该处设有易于折断的切痕 25，该固定部 23 设有倒刺 27 与端子槽 32 卡定；该延伸部 22 平贴于该端子槽 32 且接近前端板面刺破冲压出一弹片 26，该弹片 26 一端连接于该延伸部 22 而另一端向后延伸并呈开放，该弹片设有一凸出的接点 21，该接脚部 24 伸出该塑胶座体 30 下端。

[0088] 该金属外壳 60 包覆该塑胶座体 30，该金属外壳 60 前段形成一连接槽 34，该舌片 31 位于该连接槽 34 中。

[0089] 该一排端子 20 为一金属片对撕冲压所形成二排端子的其中一排端子，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子 20 其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子 20 的对撕冲切部位与二相邻端子 20 的对撕冲切部位无缝接合，该一排端子 20 的对撕冲切部位为延伸部 22 及固定部 23，延伸部 22 及固定部 23 等宽，两相邻端子的延伸部 22 及固定部 23 的间距 A 等于该延伸部 22 及固定部 23 的宽度 B。

[0090] 借由以上构造，端子在冲压制造上如图 15 所示，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于两相邻端子 20 的延伸部 22 及固定部 23 的间距 A 等于该延伸部 22 及固定部 23 的宽度 B，故第一排端子 1 的各端子 20 的延伸部 22 及固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 及固定部 23 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折接脚部 24。

[0091] 本实施例由于对撕冲切部位为延伸部 22 及固定部 23，故在端子制造上对撕冲切的长度甚长，非常节省端子用料。

[0092] 请参阅图 16、图 17、图 18 及图 19，是为本发明第六实施例，其为一种记忆卡连接器，其包括有：一塑胶座体 30、一排端子 20 及一金属上盖 65，其中：

[0093] 该塑胶座体 30 设有一排间隔排列的端子槽 32 及一连接槽 34，该连接槽 34 可容纳一记忆卡。

[0094] 该一排端子 20 设于该塑胶座体 30 的一排端子槽 32，每一排端子 20 共计有 9 个

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呈间隔排列连接于一料带 10，该一排端子 20 组装于一排端子槽 32 后再将该料带 10 折断分离，该端子 20 由前端至后端设有一延伸部 22、一固定部 23 及一接脚部 24；该固定部 23 后端连接该料带 10 且该处设有易于折断的切痕，该固定部 23 设有倒刺 27 与端子槽 32 的卡定；该延伸部 22 平贴于该端子槽 32 且前端与端子槽 32 卡定，该延伸部 22 接近前端板面刺破冲压出一弹片 26，该弹片 26 一端连接于该延伸部 22 而另一端向后延伸并呈开放，该弹片设有一凸出的接点 21，该接脚部 24 伸出该塑胶座体 30 下端。

[0095] 该金属上盖 65 设有一顶面及两侧面，其盖合该塑胶座体 30 上。

[0096] 该一排端子 20 为一金属片对撕冲压所形成二排端子的其中一排端子，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子 20 其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子 20 的对撕冲切部位与二相邻端子 20 的对撕冲切部位无缝接合，该一排端子 20 的对撕冲切部位为延伸部 22 及固定部 23，延伸部 22 及固定部 23 等宽，两相邻端子的延伸部 22 及固定部 23 的间距 A 等于该延伸部 22 及固定部 23 的宽度 B。

[0097] 借由以上构造，端子在冲压制造上如图 19 所示，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于两相邻端子 20 的延伸部 22 及固定部 23 的间距 A 等于该延伸部 22 及固定部 23 的宽度 B，故第一排端子 1 的各端子 20 的延伸部 22 及固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 及固定部 23 之间，如此该金属片先对切成第一、二排端子 1、2，该第一排端子 1 的各端子的延伸部 22 前端先连接于该第二排端子 2 的料带 10，该第二排端子 2 的各端子的延伸部 22 前端先连接于该第一排端子 1 的料带 10，如此该第一排端子 1 及第二排端子 2 可先一同电镀后再切断拉开，如此在电镀上更为简化且二排端子相连结可更为平稳。

[0098] 请参阅图 20 及图 21，是为本发明第七实施例，其为一种智慧卡连接器，其包括有：一塑胶座体 30、一排第一端子 40 及一排第二端子 50，其中：

[0099] 该塑胶座体 30 设有一底座 36 及一盖合于该底座 36 上的上盖 37，其内设有一容置一智慧卡的连接槽 34，该塑胶座体前端设有该连接槽的插入口 38，该底座 36 上接近后端设有一对开关端子 48、49，该智慧卡插入该连接槽 34 时可触动该一对开关端子 48、49，该底座 36 中段设有一排间隔排列且前后贯通的端子槽 32。

[0100] 该一排第一端子 40 设于该一排端子槽 32 的后段，每一第一端子 40 由前而后设有一延伸部 41、一固定部 42 及一接脚部 43，该延伸部 41 呈水平延伸且平贴于端子槽 32 的底面，其前段的板面向上刺破冲压凸出一弹片 44，该弹片设有一凸出的接点 45，其一端连接于延伸部的前端，另一端向接脚部 43 方向延伸凸出并成开放，该弹片 44 凸出端子槽 32 至该连接槽 34，该固定部 42 固定于端子槽 32，该接脚部 43 延伸至塑胶座体 30 后端伸出塑胶座体 30 外。

[0101] 该一排第二端子 50 设于该一排端子槽 32 的前段且与该一排第一端子 40 成前后对齐，每一第二端子 50 由一端至另一端设有一延伸部 51、一固定部 52 及一接脚部 53，该延伸部 51 呈水平延伸且较第一端子 40 的延伸部 41 为短，其平贴于端子槽 32 的底面，其前段的板面向下刺破冲压凸出一弹片 54，该弹片 54 成一弹片，其一端连接于延伸部，另一端向远离接脚部 53 方向延伸凸出并成开放，该弹片 54 凸出端子槽 32 至该连接槽 34，该固定部 52 固定于端子槽 32，该接脚部 53 延伸至塑胶座体 30 前端伸出塑胶座体 30

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外。

[0102] 请参阅图 22，该一排第一端子 40 及一排第二端子 50 是由一片铜材对撕冲压而成，每一端子设有一对撕冲切部位，该一排第一端子 40 及一排第二端子 50 是呈反向对接，该一排第一端子 40 的各端子的对撕冲切部位无缝接合于该第二端子 50 的两相邻端子的对撕冲切部位之间，第一、二端子 40、50 的对撕冲切部位为延伸部，该一排第一端子 40 的延伸部宽度 41 与二相邻端子的延伸部 41 间距相同，该一排第二端子 50 的延伸部 51 宽度与二相邻端子的延伸部 51 间距相同，该一排第二端子的每一端子 50 的延伸部 51 反向无缝接合于第一端子 40 的二相邻端子的延伸部 41 之间，该一排第一端子的各第一端子 40 的延伸部 41 前端连接于该一排第二端子 50 的料带 10，该一排第二端子的各第二端子 50 的延伸部 51 前端连接于该一排第一端子 40 的料带 10，如此该一排第一端子 40 及该一排第二端子 50 可先一同电镀后再切断拉开，如此在电镀上更为简化且二排端子相连结可更为平稳。

[0103] 由于智慧卡连接器的端子间距为 2.54mm，故该一排第一端子及一排第二端子的延伸部宽度为 1.27mm。

[0104] 请参阅图 23，是为一片铜材对撕冲压成相同形状的二排第二端子 50，其同样是二排第二端子 50 的延伸部 51 相互反向无缝接合。另外，同样亦可一片铜材对撕冲压成相同形状的二排第一端子 40。

[0105] 在较佳实施例的详细说明中所提出的具体的实施例仅为了易于说明本发明的技术内容，而并非将本发明狭义地限制于该实施例，在不超出本发明的精神及申请专利范围的情况，可作种种变化实施。

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图 2

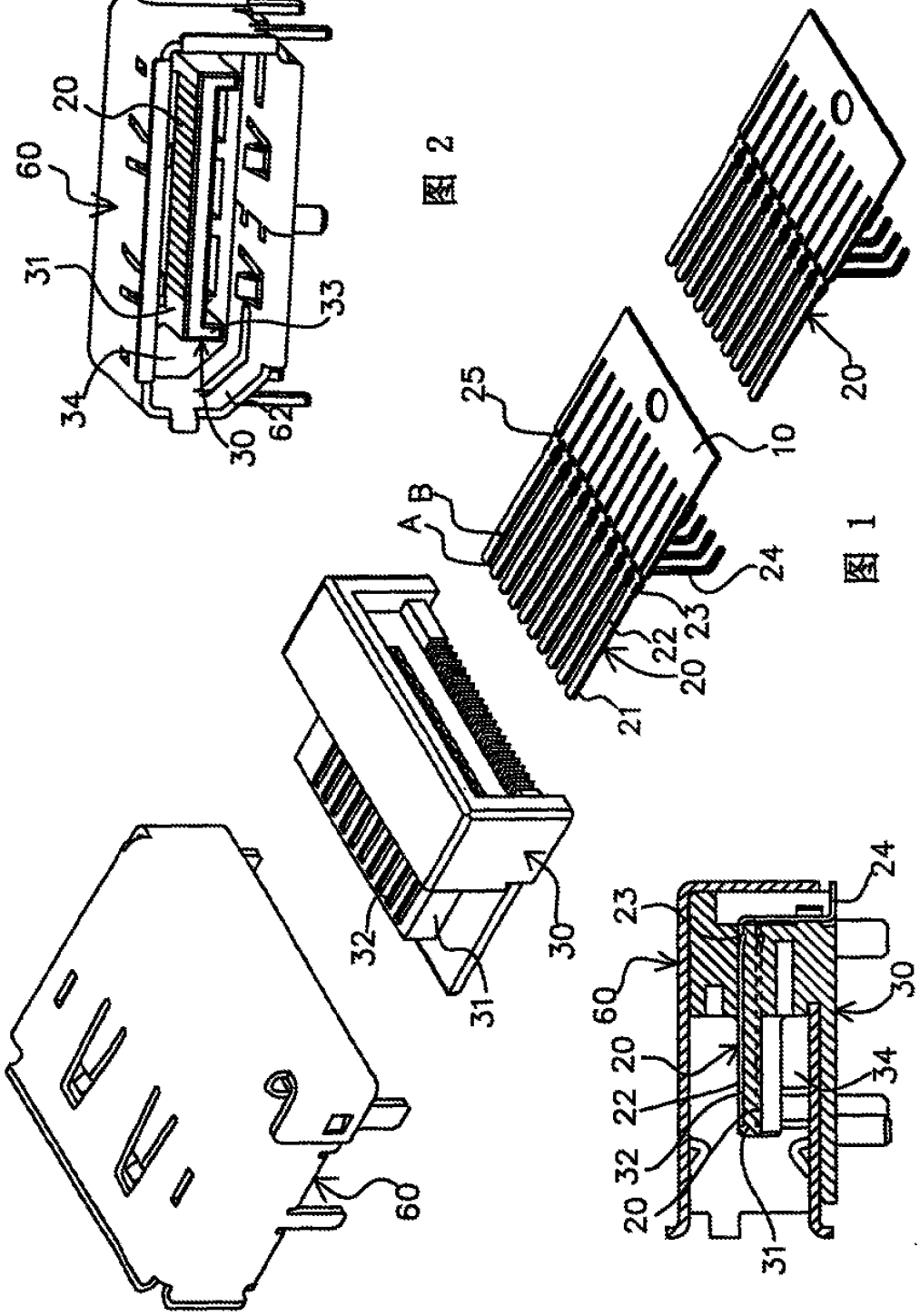


图 1

图 3

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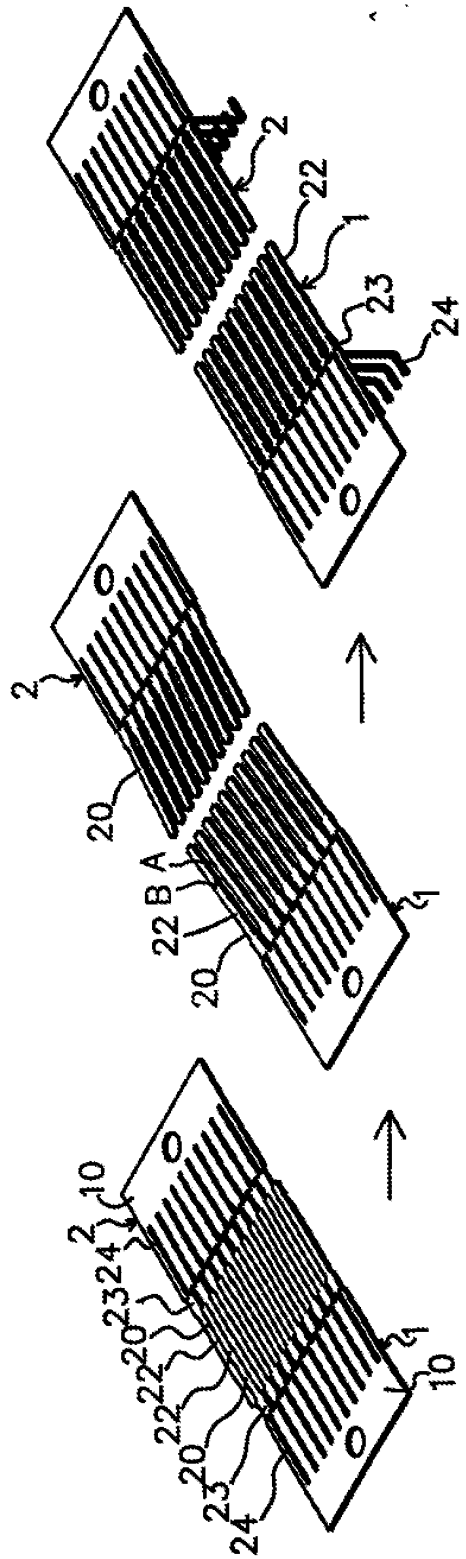


图 4

Samsung, EX1019, p. 574

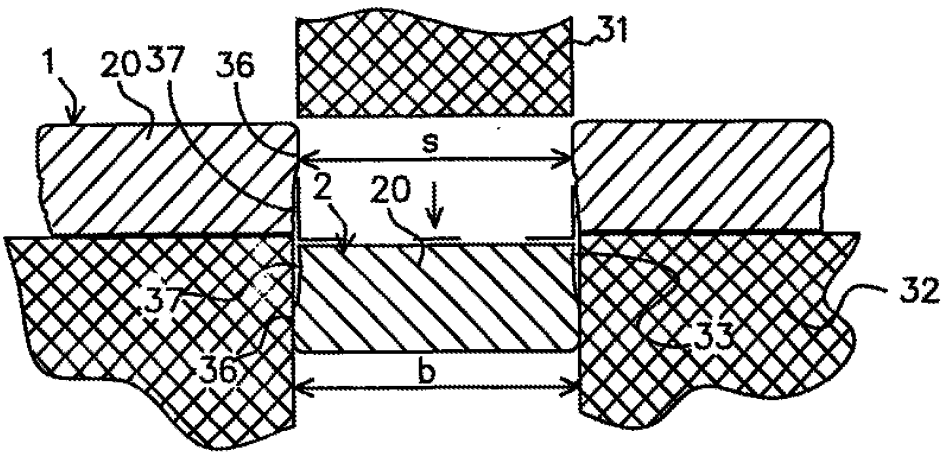


图 5

Samsung, EX1019, p. 575

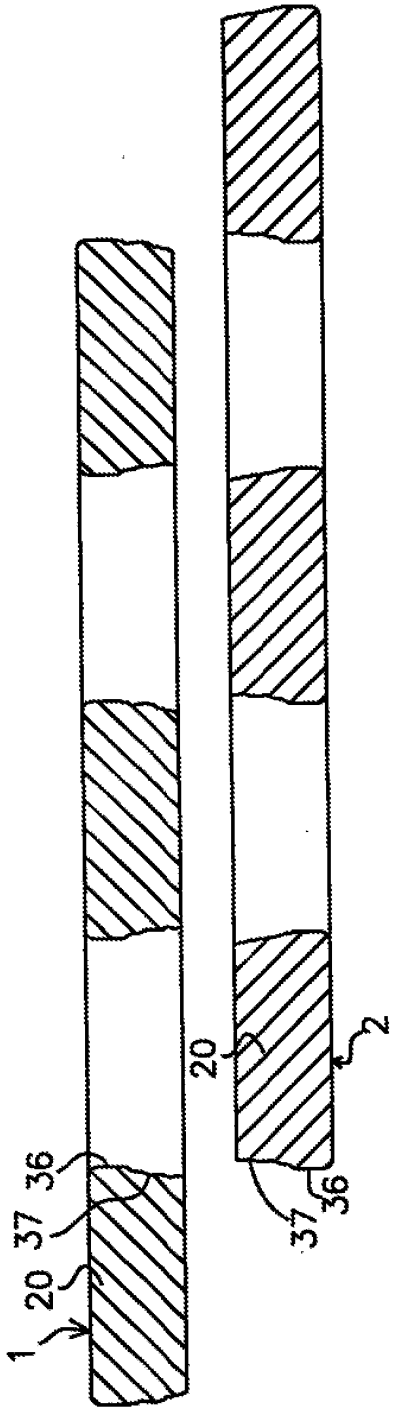


图 6

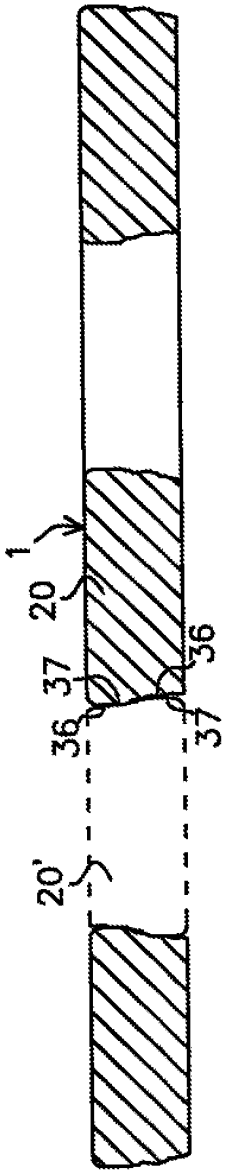


图 7

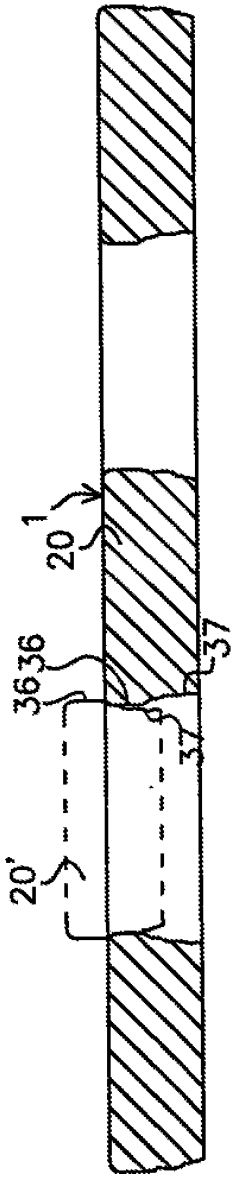


图 8

Samsung, EX1019, p. 576

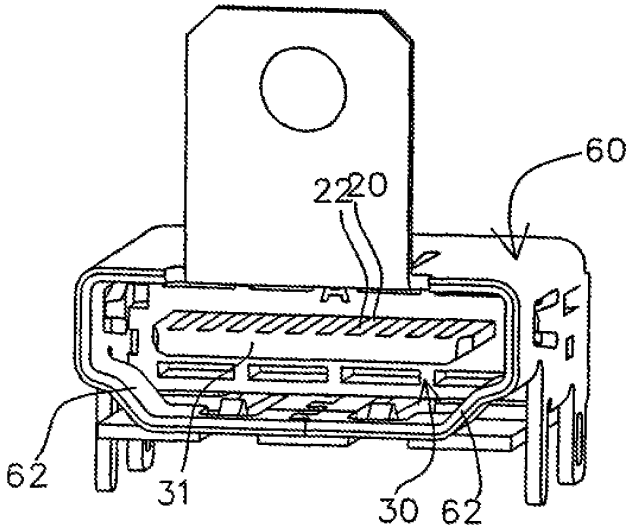


图 9

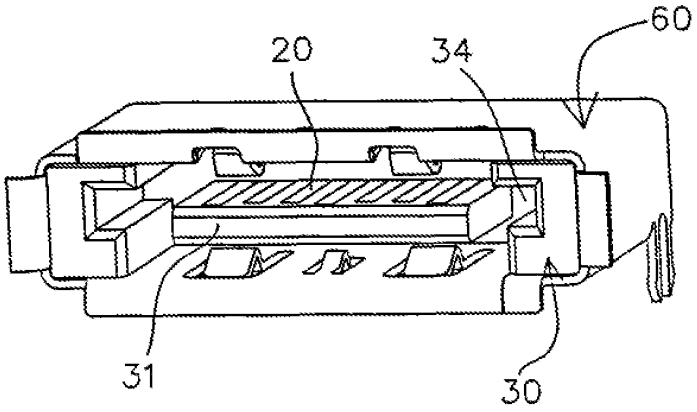


图 10

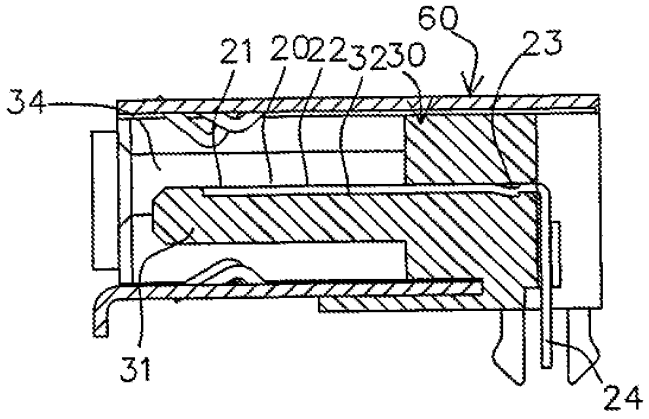


图 11

Samsung, EX1019, p. 577

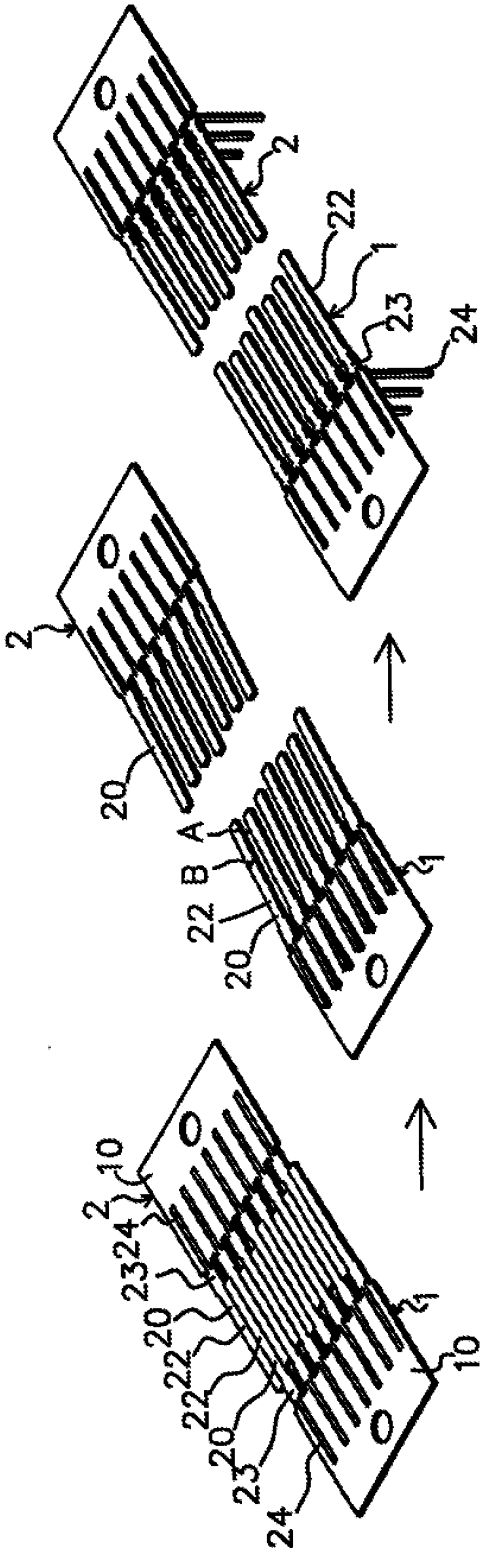


图 12

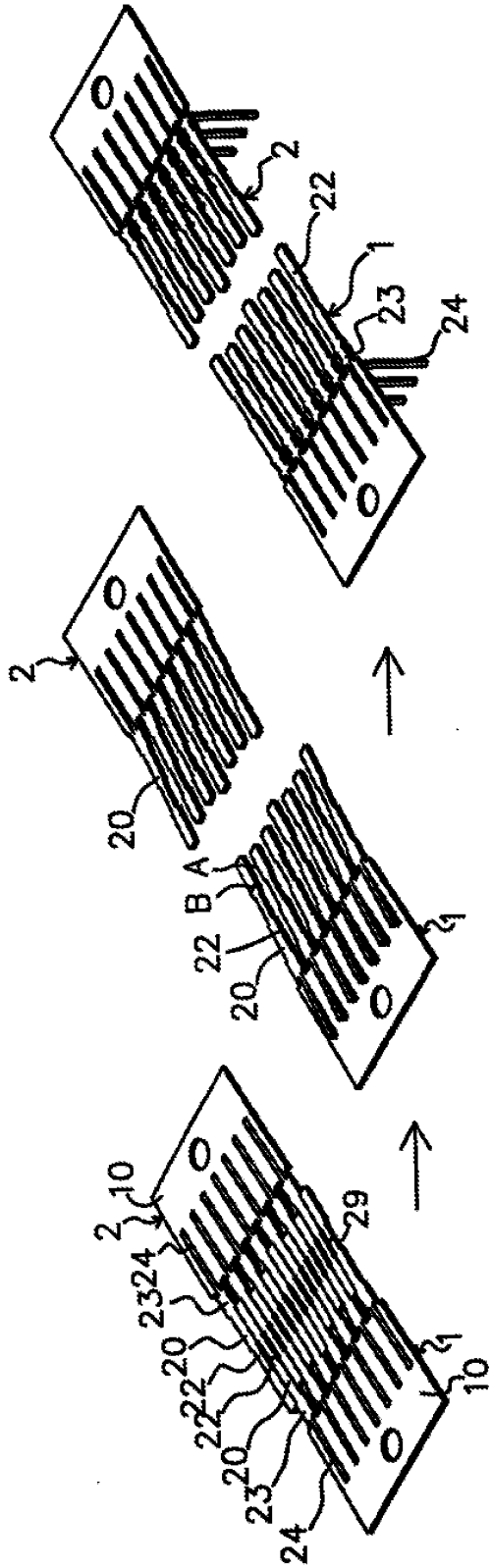


图 13

Samsung, EX1019, p. 578

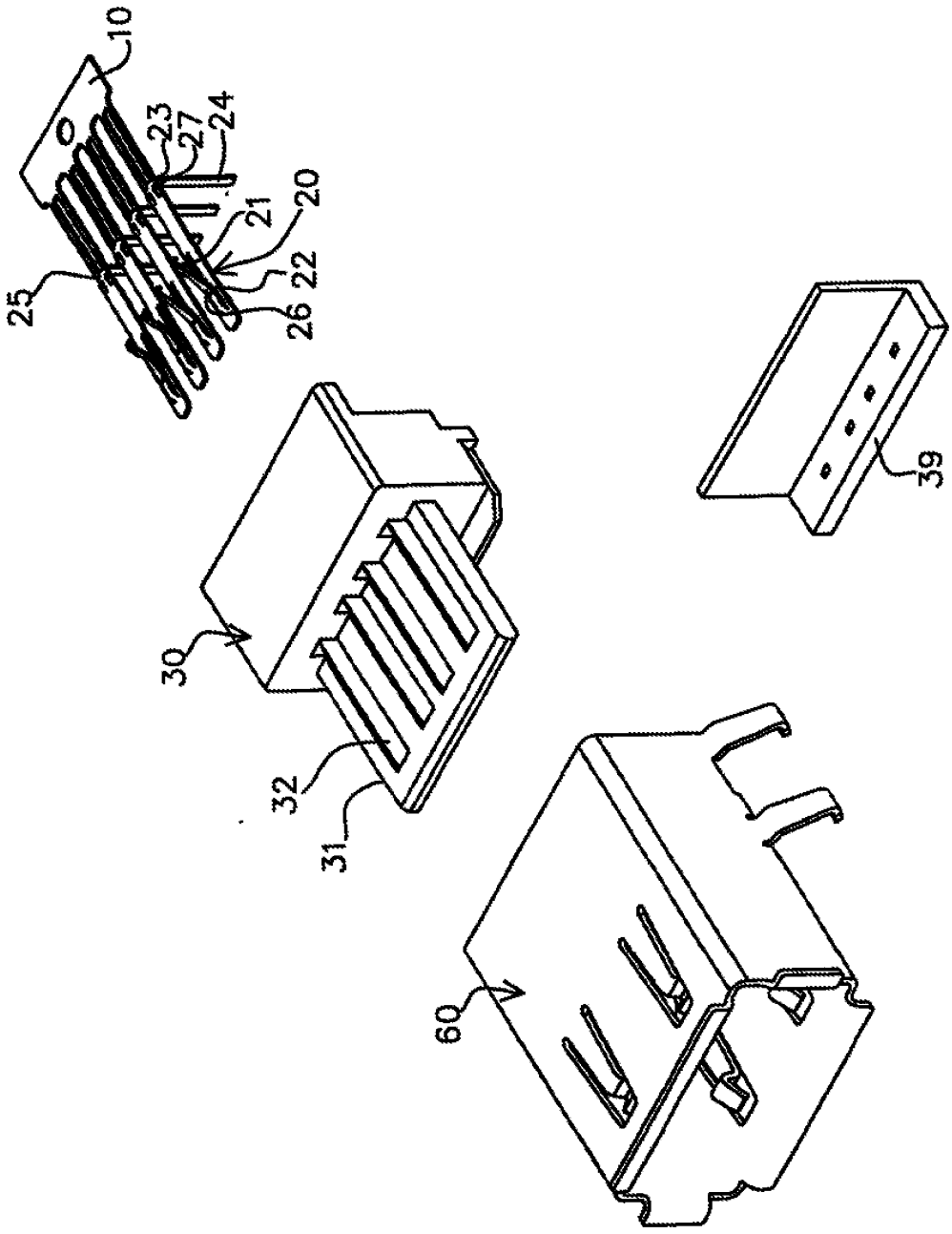


图 14

Samsung, EX1019, p. 579

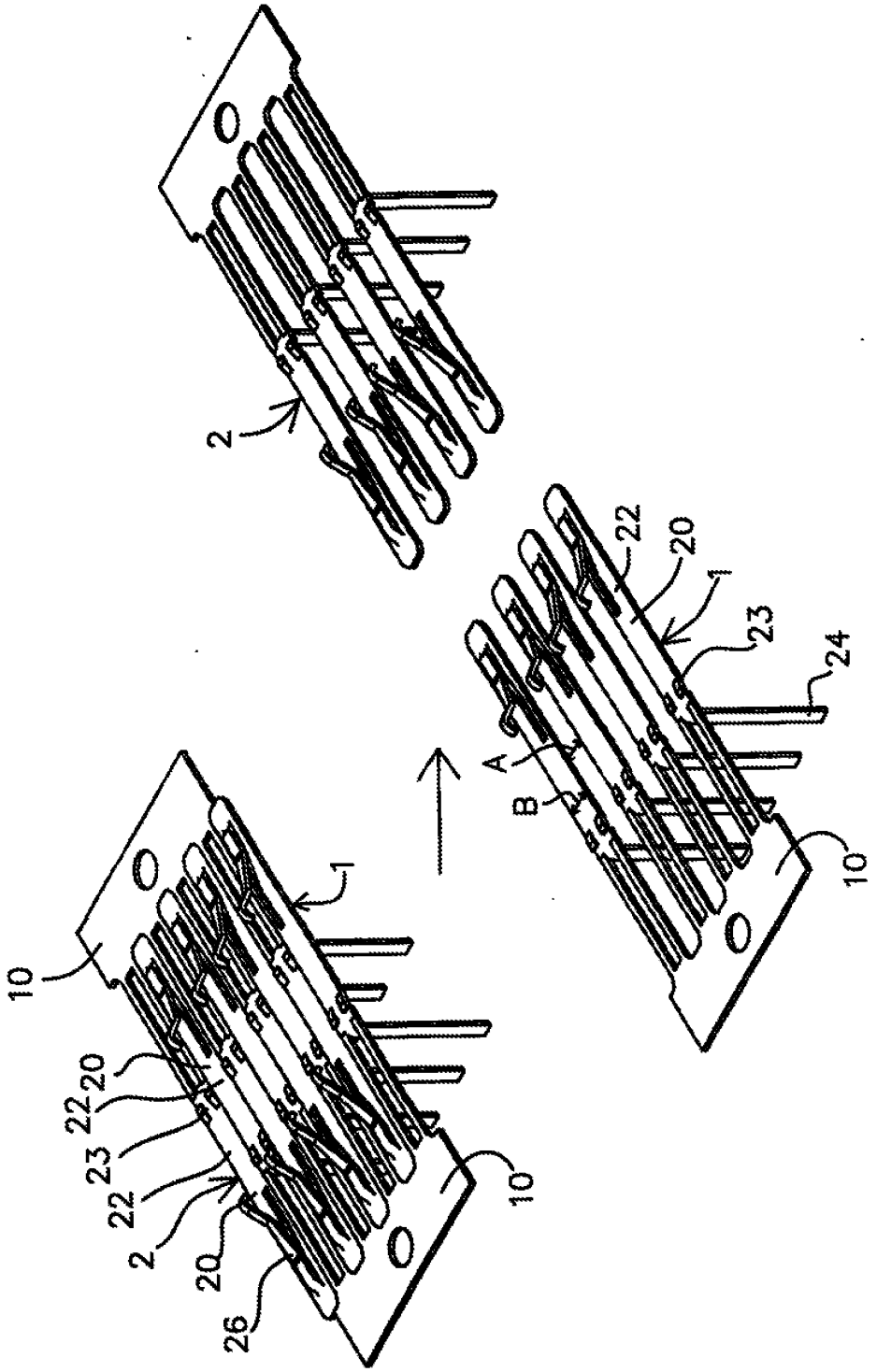


图 15

Samsung, EX1019, p. 580

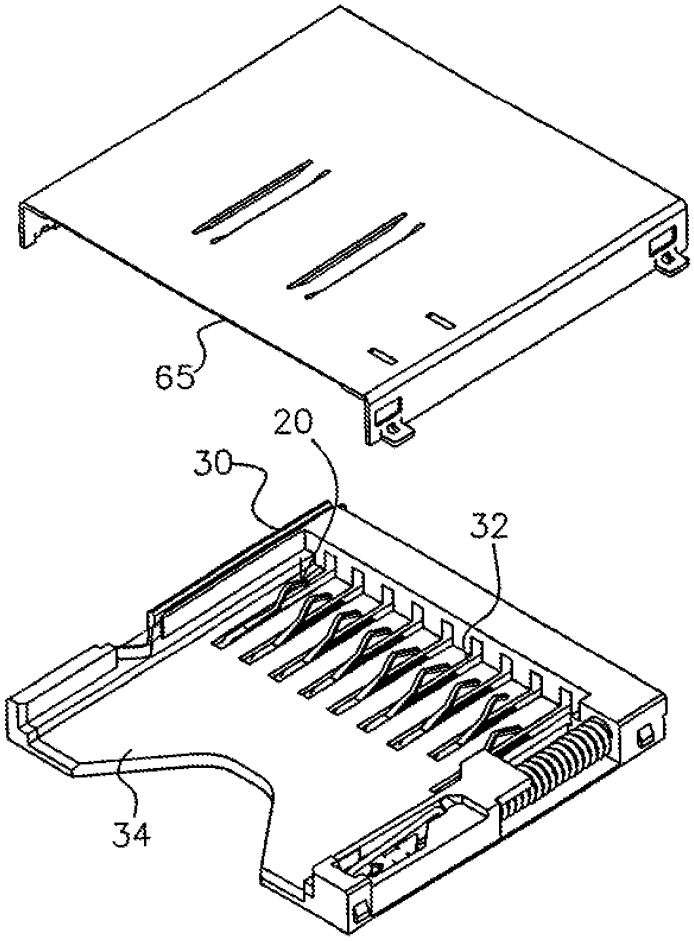


图 16

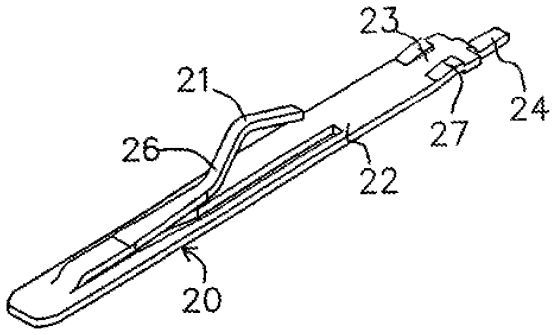


图 17

Samsung, EX1019, p. 581

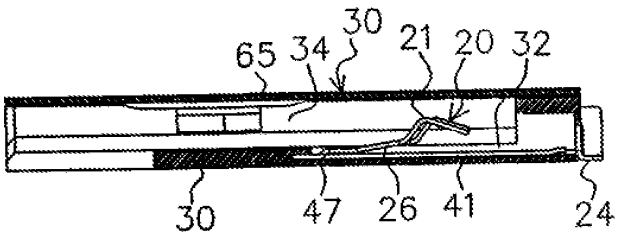


图 18

Samsung, EX1019, p. 582

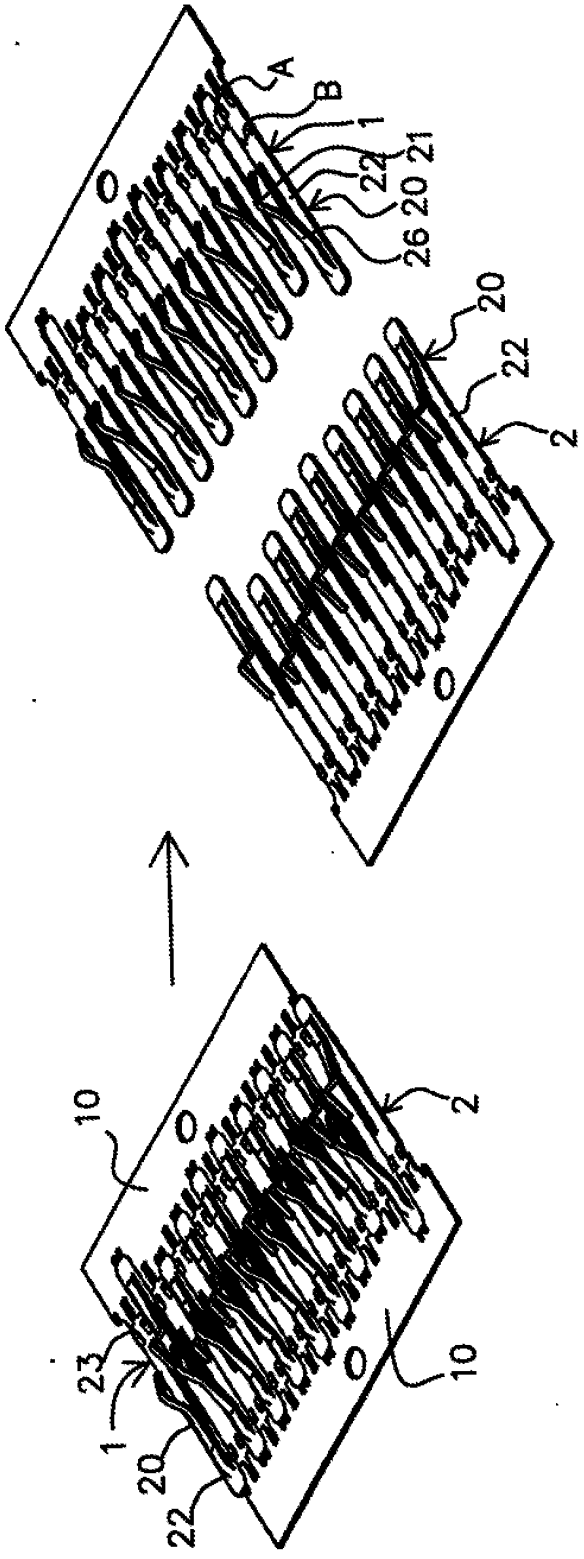


图 19

Samsung, EX1019, p. 583

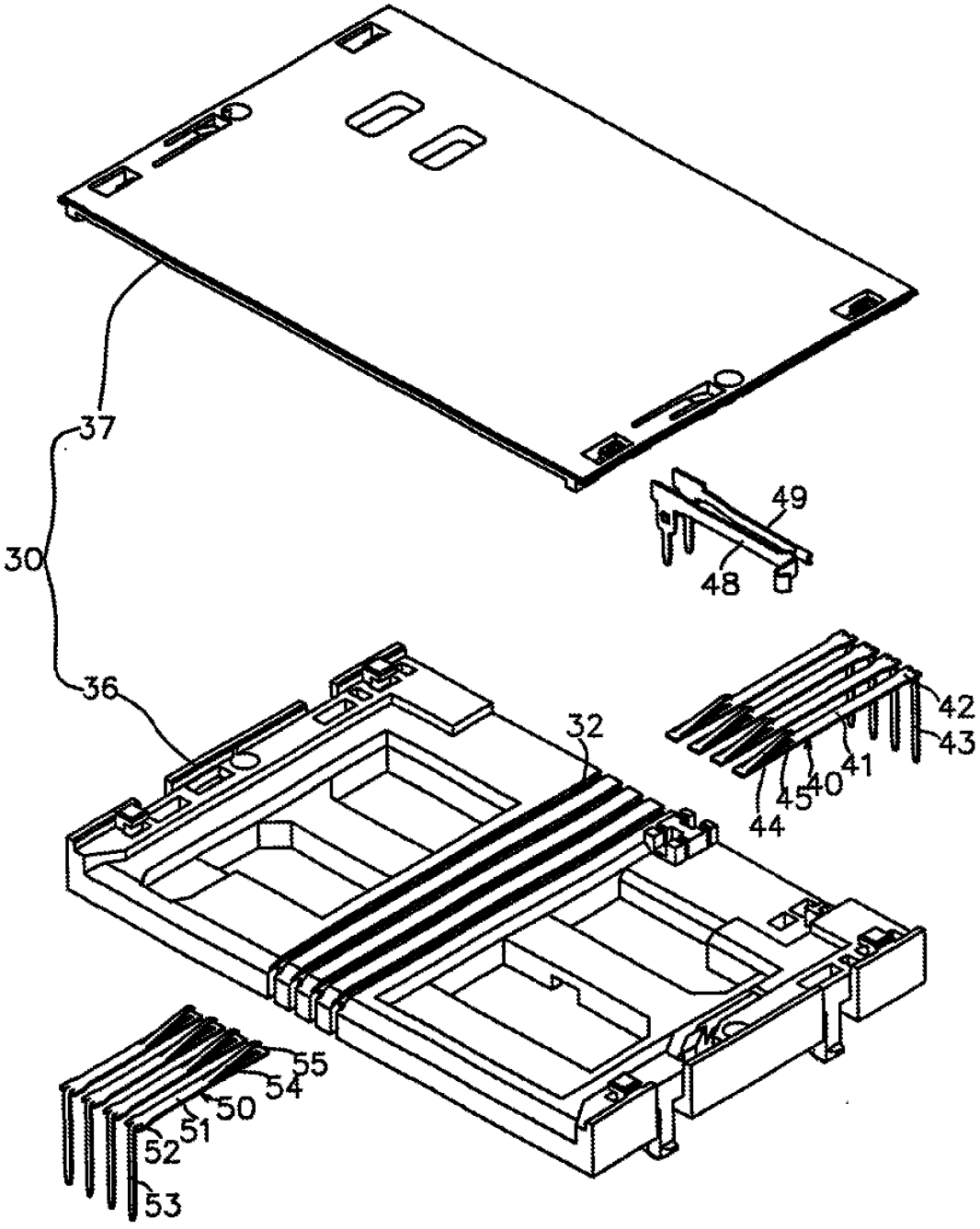


图 20

Samsung, EX1019, p. 584

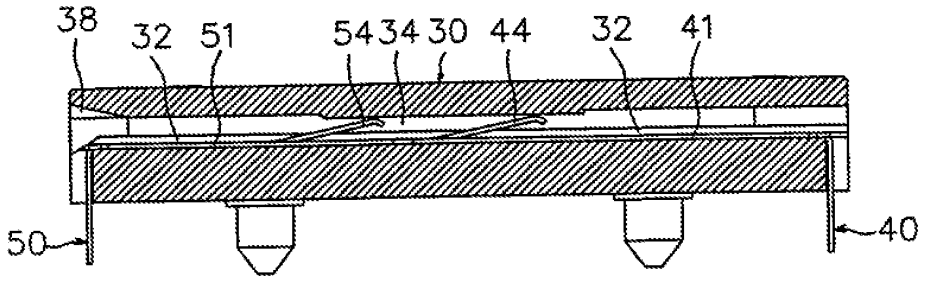


图 21

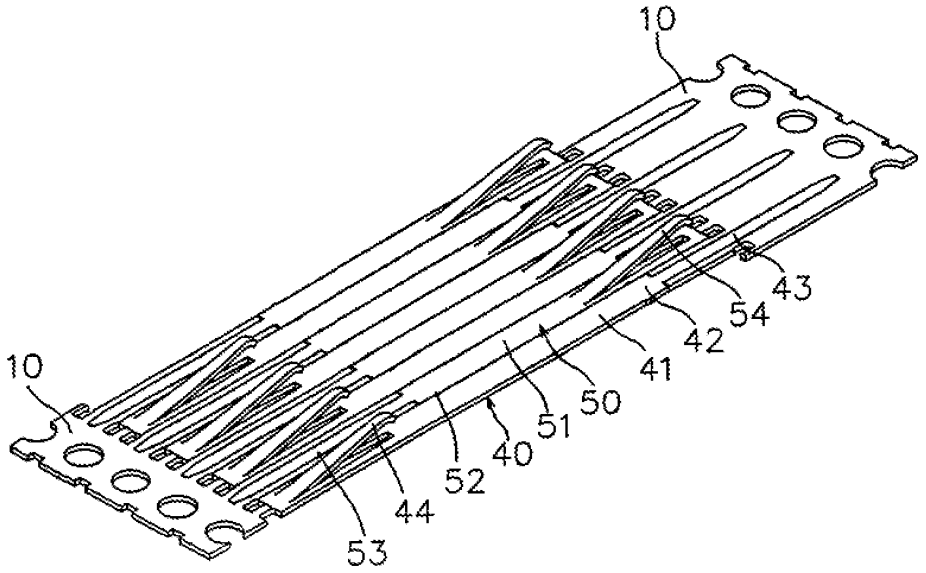


图 22

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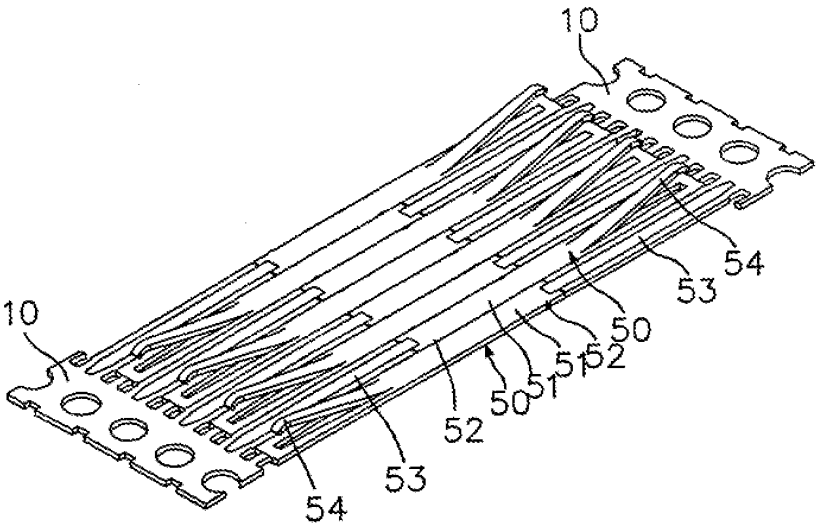


图 23

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Espacenet

CN102025052A Electric connector and terminal structure thereof

Applicants: ZHOUXIAN CAI

Inventors: ZHOUXIAN CAI

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Electric connector and terminal structure thereof

Abstract

The invention relates to an electric connector, which comprises a plastic base body and at least one row of terminals, wherein at least one row of terminal grooves is formed in the plastic base body; the at least one row of terminals is arranged in at least one row of terminal grooves of the plastic base body; each terminal is provided with a springing part, a fixing part and a pin part from one end to the other end; the springing part is provided with a contact; the fixing part is fixed with the terminal grooves; the pin part extends out of the plastic base body; when inserted, an electronic element can be connected with the contact, so that the springing part is sprung; the at least one row of terminals is one of two rows of terminals formed by oppositely tearing and stamping a metal sheet; each of the two rows of terminals is provided with two oppositely-tearing and punching positions which are in mutual and seamless butt joint; and when one row of terminals is unfolded to form a plane, and one terminal is jointed between two adjacent terminals oppositely and reversely, the oppositely-tearing and punching position of the terminal is in seamless joint with the oppositely-tearing and punching positions of the two adjacent terminals.

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200920146790.9 2009.06.02 CN
200920146791.3 2009.06.02 CN
200920152427.8 2009.06.05 CN
200920156921.1 2009.06.09 CN
200920177768.0 2009.09.10 CN
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H01R 13/42(2006.01)
H01R 13/516(2006.01)
H01R 43/16(2006.01)

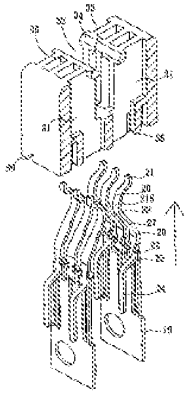
权利要求书 5 页 说明书 13 页 附图 34 页

(54)发明名称

电连接器及其端子构造

(57)摘要

一种电连接器，其包括有：一塑胶座体，其内设有至少一排端子槽；至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当一电子元件插入时可与该接点连接并使该弹动部弹动；该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。



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1. 一种电连接器，包括有：

一塑胶座体，其内设有至少一排端子槽；

至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当一电子元件插入时能够与该接点连接并使该弹动部弹动；

其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

2. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的对撕冲切部位为弹动部及固定部，该弹动部和固定部间设有一延伸部，该固定部宽度较该延伸部宽度和该弹动部宽度为宽，该弹动部设有第一、二端，该延伸部设有第一、二端，该固定部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该接延伸部第一端，该延伸部第二端连接该固定部的第一端，该固定部的第二端连接该接脚部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部的形状能够反向且反面接合于两相邻端子的弹动部间隔区域。

3. 如权利要求 2 所述的电连接器，其特征在于：该延伸部亦为对撕冲切部位，该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该延伸部宽度较该弹动部宽度为宽，该一排端子展开成平面时，该延伸部的形状能够反向且反面无缝隙接合于两相邻端子的延伸部间隔区域。

4. 如权利要求 3 所述的电连接器，其特征在于：该延伸部设成相同长度的延伸部第一段和延伸部第二段，延伸部第二段宽度较延伸部第一段宽度为宽，该两相邻端子的延伸部第一段的间距等于该延伸部第二段宽度，延伸部第一段宽度 + 延伸部第二段宽度 = 弹动部宽度 + 固定部宽度。

5. 如权利要求 2 所述的电连接器，其特征在于：该固定部设成不同宽度的固定部第一段和固定部第二段，固定部第二段宽度较固定部第一段宽度为宽，该弹动部设成不同宽度的弹动部第一段和弹动部第二段，弹动部第二段宽度较弹动部第一段宽度为宽，该弹动部第二段长度和固定部第一段长度相同，该两相邻端子的弹动部第一段间距等于该固定部第二段宽度，该两相邻端子的弹动部第二段间距等于该固定部第一段宽度，弹动部第一段宽度 + 固定部第二段宽度 = 弹动部第二段宽度 + 固定部第一段宽度。

6. 如权利要求 1 所述的电连接器，其特征在于：该塑胶座体设有一连接槽，该端子槽在该连接槽的插入口设有一抵靠面，该端子的弹动部弹性抵靠于该抵靠面。

7. 如权利要求 2 所述的电连接器，其特征在于：该固定部设有宽度更为凸出的倒刺，该弹动部设有宽度更小的凹部，该倒刺能够无缝隙接合该凹部。

8. 如权利要求 2 所述的电连接器，其特征在于：该一排端子展开成平面时，该其中一端子的固定部的形状反向且反面接合于两相邻端子的弹动部间隔区域时无缝隙靠合该两相邻端子的弹动部。

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9. 如权利要求 3 所述的电连接器，其特征在于：该每一端子的延伸部由第一端至第二端呈凸凹间隔形状。

10. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子槽为二排呈一间距并相面对，该两排端子槽之间形成一连接槽，该塑胶座体呈纵长条形状，该连接槽亦呈纵长条形状，该两排端子槽呈上下方向延伸，该端子的弹动部可侧向弹动。

11. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子槽为二排呈一间距并相面对，该两排端子槽之间形成一连接槽，该两排端子槽呈前后方向延伸，该端子的弹动部可上下弹动。

12. 如权利要求 11 所述的电连接器，其特征在于：还设有一金属外壳包覆该塑胶座体。

13. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子槽为一排，该端子槽呈前后方向延伸，且还设有一金属上盖盖合于该塑胶座体上方。

14. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的对撕冲切部位为弹动部，该固定部宽度较该弹动部宽度为宽，该弹动部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该于固定部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该弹动部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的弹动部的形状能够反向且反面接合于两相邻端子的弹动部间隔区域。

15. 如权利要求 14 所述的电连接器，其特征在于：该一排端子展开成平面时，其中一端子的弹动部的形状能够反向且反面无缝隙接合于两相邻端子的弹动部间隔区域。

16. 如权利要求 1 所述的电连接器，其特征在于：该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位的切断面与二相邻端子的对撕冲切部位的切断面无缝接合。

17. 如权利要求 1 所述的电连接器，其特征在于：该塑胶座体间隔排列设有多排端子槽，该端子槽设有与前、后排端子槽相隔的第一壁及第二壁；该至少一排端子的对撕冲切部位为接脚部及固定部，该同一排相邻端子的接脚部间距等于该固定部的宽度，且其中一端子的固定部的形状能够反向且反面接合于二相邻端子的接脚部间隔区域。

18. 如权利要求 17 所述的电连接器，其特征在于：该一排端子的其中一端子的固定部的形状能够反向且反面无缝隙接合于二相邻端子的接脚部间隔区域。

19. 如权利要求 17 所述的电连接器，其特征在于：该端子的弹动部接近末端设有该接点，该接点为端子的最高点，当该接点受力时弹动部能够上下弹动，该端子的弹动部延伸逾过该第一壁至前排的端子槽上方。

20. 如权利要求 17 所述的电连接器，其特征在于：该端子的弹动部是连接于该固定部上端中间，该固定部上端的两侧各设有一连接凸部。

21. 如权利要求 17 所述的电连接器，其特征在于：该端子的固定部上端一侧设有一连接凸部，该弹动部是连接于该连接凸部一侧且转折一夹角。

22. 如权利要求 1 所述的电连接器，其特征在于：该金属片对撕冲压所形成的二排端子为相同构造。

23. 如权利要求 1 所述的电连接器，其特征在于：该至少一排端子的对撕冲切部位为

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固定部，该固定部设有第一、二端，第一端连接弹动部，第二端连接接脚部，一排端子中二相邻端子的固定部由第一端至第二端依序的间距等于其中一端子的固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的固定部与二相邻端子的固定部无缝接合。

24. 如权利要求 23 所述的电连接器，其特征在于：该塑胶座体还设有至少一排连接槽，每一端子槽与一连接槽相通，其一端设有一凸部，该凸部设有至少一排插孔对应该至少一排连接槽，另外还设有一金属套壳套合于塑胶座体一端，其包覆该凸部的周边且让凸部的插孔露出。

25. 如权利要求 23 所述的电连接器，其特征在于：该固定部由第一端至第二端等宽，该固定部弯折成二垂直板面，纵向板面向下延伸并连接该接脚部。

26. 如权利要求 24 所述的电连接器，其特征在于：该至少一排端子的弹动部、固定部与接脚部皆呈纵向延伸，该塑胶座体的凸部朝上。

27. 一排端子构造，其为一金属片对撕冲压所形成二排端子的其中一排端子，包括有：

一料带；及

多个端子，呈间隔排列连接于该料带，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动；

其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

28. 如权利要求 27 所述的一排端子构造，其特征在于：该每一端子的对撕冲切部位为弹动部及固定部，该弹动部和固定部间设有一延伸部，该固定部宽度较该延伸部宽度和该弹动部宽度为宽，该弹动部设有第一、二端，该延伸部设有第一、二端，该固定部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该接延伸部第一端，该延伸部第二端连接该固定部的第一端，该固定部的第二端连接该接脚部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部的形状能够反向且反面接合于两相邻端子的弹动部间隔区域。

29. 如权利要求 28 所述的一排端子构造，其特征在于：该延伸部亦为对撕冲切部位，该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该延伸部宽度较该弹动部宽度为宽，该一排端子展开成平面时，该延伸部的形状能够反向且反面无缝隙接合于两相邻端子的延伸部间隔区域。

30. 如权利要求 28 所述的一排端子构造，其特征在于：该固定部设成不同宽度的固定部第一段和固定部第二段，固定部第二段宽度较固定部第一段宽度为宽，该弹动部设成不同宽度的弹动部第一段和弹动部第二段，弹动部第二段宽度较弹动部第一段宽度为宽，该两相邻端子的弹动部第一段间距等于该固定部第二段宽度，该两相邻端子的弹动部第二段间距等于该固定部第一段宽度，弹动部第一段宽度＋固定部第二段宽度＝弹动

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部第二段宽度 + 固定部第一段宽度。

31. 如权利要求 28 所述的一排端子构造，其特征在于：该一排端子展开成平面时，该其中一端子的固定部的形状反向且反面接合于两相邻端子的弹动部间隔区域时无缝隙靠合该两相邻端子的弹动部。

32. 如权利要求 27 所述的一排端子构造，其特征在于：该至少一排端子的对撕冲切部位为弹动部，该固定部宽度较该弹动部宽度为宽，该弹动部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该于固定部；该两相邻端子的弹动部由第一端至第二端依序的间距等于该弹动部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的弹动部的形状可反向且反面接合于两相邻端子的弹动部间隔区域。

33. 如权利要求 32 所述的一排端子构造，其特征在于：该一排端子展开成平面时，其中一端子的弹动部的形状能够反向且反面无缝隙接合于两相邻端子的弹动部间隔区域。

34. 如权利要求 27 所述的一排端子构造，其特征在于：该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位的切断面与二相邻端子的对撕冲切部位的切断面无缝接合。

35. 如权利要求 27 所述的一排端子构造，其特征在于：该一排端子的对撕冲切部位为接脚部及固定部，相邻端子的接脚部间距等于该固定部的宽度，且其中一端子的固定部的形状能够反向且反面接合于二相邻端子的接脚部间隔区域。

36. 如权利要求 35 所述的一排端子构造，其特征在于：一端子的固定部的形状能够反向且反面无缝隙接合于二相邻端子的接脚部间隔区域。

37. 如权利要求 27 所述的一排端子构造，其特征在于：该金属片对撕冲压所形成的二排端子是为相同构造。

38. 如权利要求 27 所述的一排端子构造，其特征在于：该一排端子的对撕冲切部位为固定部，该固定部设有第一、二端，第一端连接弹动部，第二端连接接脚部，该一排端子中二相邻端子的固定部由第一端至第二端依序的间距等于其中一端子的固定部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的固定部与二相邻端子的固定部无缝接合。

39. 如权利要求 27 所述的一排端子构造，其特征在于：该接脚部的两侧各无缝接合一连接片，该二连接片一端连接料带且另一端连接于固定部一端，该一排端子的对撕冲切部位为为弹动部、固定部和接脚部两侧的连接片，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的弹动部及固定部和二相邻端子的接脚部两侧的连接片无缝接合。

40. 二排端子构造，其为一金属片对撕冲压而形成，其特征在于：包括有：

一第一排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

一第二排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，

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该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

该第一、二排端子是呈反向对接，该第一、二排端子展开成平面时，该第一排端子的各端子的对撕冲切部位无缝接合于该第二排端子的两相邻端子的对撕冲切部位的间隔区域。

41. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为弹动部及固定部，该弹动部和固定部间设有一延伸部，该固定部宽度较该延伸部宽度和该弹动部宽度为宽，该弹动部设有第一、二端，该延伸部设有第一、二端，该固定部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该接延伸部第一端，该延伸部第二端连接该固定部的第一端，该固定部的第二端连接该接脚部；该第一排端子的固定部的形状接合于第二排端子的两相邻端子的弹动部间隔区域。

42. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为弹动部，该固定部宽度较该弹动部宽度为宽，该弹动部设有第一、二端，该弹动部的第一端为端子的尾端，该弹动部的第二端连该于固定部，该两相邻端子的弹动部由第一端至第二端依序的间距等于该弹动部由第二端至第一端依序的宽度；该第一排端子的各端子的弹动部接合于该第二排端子的两相邻端子的弹动部的间隔区域。

43. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为固定部及接脚部，该两相邻端子的接脚部间距等于该固定部的宽度；该第一排端子的各端子的固定部接合于该第二排端子的两相邻端子的接脚部的间隔区域，该第一排端子的各端子的接脚部接合于该第二排端子的两相邻端子的固定部的间隔区域。

44. 如权利要求 40 所述的二排端子构造，其特征在于：该第一、二排端子的对撕冲切部位为固定部，该固定部设有第一、二端，第一端连接弹动部，第二端连接接脚部，该第一、二排端子中二相邻端子的固定部由第一端至第二端依序的间距等于其中一端子的固定部由第二端至第一端依序的宽度；该第一排端子的各端子的固定部接合于该第二排端子的两相邻端子的固定部的间隔区域。

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电连接器及其端子构造

【技术领域】

[0001] 本发明是有关于一种电连接器，特别是关于一种端子在冲压制造非常节省材料的电连接器。

【背景技术】

[0002] 电连接器的端子在制造上是以金属片冲压，冲压完成的端子是依电连接器的端子间距而间隔排列连接于一料带上，如此整排的端子可一次组装在电连接器的塑胶座体上。

[0003] 上述整排连续排列端子在冲压制造上，两相邻端子的间隔区域则是金属片打掉材料而形成，故此部份则成废料，因此，若要节省端子冲压上的成本则需减少废料形成。

【发明内容】

[0004] 本发明的主要目的在于提供一种电连接器及其端子构造，其端子冲压制造上，是采二排端子对撕冲压，达到省料效果。

[0005] 本发明的另一主要目的在于提供一种电连接器，其端子冲压制造上，是采二排端子对撕冲压，达到省料效果。

[0006] 为达上述目的，本发明电连接器包括有：一塑胶座体，其内设有至少一排端子槽；至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当一电子元件插入时可与该接点连接并使该弹动部弹动；其特征在于该至少一排端子是为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

[0007] 承接上述，本发明提供一种电连接器，包括有：

[0008] 一塑胶座体，其内设有至少一排端子槽；

[0009] 至少一排端子，其设于该塑胶座体的至少一排端子槽，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该弹动部设有一接点，该固定部与端子槽固定，该接脚部伸出该塑胶座体外，当一电子元件插入时能够与该接点连接并使该弹动部弹动；

[0010] 其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

[0011] 本发明还提供一种一排端子构造，其为一金属片对撕冲压所形成二排端子的其

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中一排端子，包括有：

[0012] 一料带；及

[0013] 多个端子，呈间隔排列连接于该料带，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动；

[0014] 其特征在于：该至少一排端子为一金属片对撕冲压所形成的二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合。

[0015] 本发明还提供一种二排端子构造，其为一金属片对撕冲压而形成，其特征在于：包括有：

[0016] 一第一排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

[0017] 一第二排端子，设有一料带及多个呈间隔排列连接于该料带的端子，每一端子由一端至另一端设有一弹动部、一固定部、及一接脚部，该固定部的宽度较该弹动部为宽，该弹动部设有一接点且可弹动，该每一端子设有一对撕冲切部位；

[0018] 该第一、二排端子是呈反向对接，该第一、二排端子展开成平面时，该第一排端子的各端子的对撕冲切部位无缝接合于该第二排端子的两相邻端子的对撕冲切部位的间隔区域。

[0019] 借由以上构造，在端子冲压制造上，二排端子可对撕冲压，达到省料效果。

[0020] 本发明的上述及其他目的、优点和特色由以下较佳实施例的详细说明中并参考图式当可更加明白，其中：

【附图说明】

[0021] 图 1 是本发明第一实施例的立体分解图。

[0022] 图 2 是本发明第一实施例的一排端子展开平面图。

[0023] 图 3 是本发明第一实施例的立体组合图。

[0024] 图 4 是本发明第一实施例的组合剖面图。

[0025] 图 5 是本发明第一实施例的端子冲压制造流程示意图。

[0026] 图 6 是本发明第一实施例的端子冲压制造示意图。

[0027] 图 7 是本发明第一实施例的二排端子的延伸部的切断面示意图。

[0028] 图 8 是本发明第一实施例的第一排端子的其中一端子成反面反向接合于两端子之间的切断面接合状态示意图。

[0029] 图 9 是本发明第一实施例的第一排端子的其中一端子成正面反向接合于两端子之间的切断面接合状态示意图。

[0030] 图 10 是本发明第二实施例的立体组合图。

[0031] 图 11 是本发明第三实施例的端子立体图。

[0032] 图 12 是本发明第三实施例的端子展开平面图。

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[0033] 图 13 是本发明第三实施例的端子冲压制造流程示意图。

[0034] 图 14 是本发明第四实施例的端子展开平面图。

[0035] 图 15 是本发明第五实施例的剖面侧视图。

[0036] 图 16 是本发明第五实施例的剖面立体图。

[0037] 图 17 是本发明第五实施例的端子冲压制造流程示意图。

[0038] 图 18 是本发明第六实施例的正面立体图。

[0039] 图 19 是本发明第六实施例的一排端子立体图。

[0040] 图 20 是本发明第六实施例的反面立体图。

[0041] 图 21 是本发明第七实施例的立体分解图。

[0042] 图 22 是本发明第七实施例的一排端子展开平面图。

[0043] 图 23 是本发明第七实施例的立体组合图。

[0044] 图 24 是本发明第七实施例的组合剖面图。

[0045] 图 25 是本发明第七实施例的端子冲压制造流程示意图。

[0046] 图 26 是本发明第八实施例的端子展开平面图。

[0047] 图 27 是本发明第九实施例的剖面侧视图。

[0048] 图 28 是本发明第九实施例的剖面立体图。

[0049] 图 29 是本发明第九实施例的端子冲压制造流程示意图。

[0050] 图 30 是本发明第十实施例的正面立体图。

[0051] 图 31 是本发明第十实施例的一排端子立体图。

[0052] 图 32 是本发明第十实施例的反面立体图。

[0053] 图 33 是本发明第十一实施例的立体分解图。

[0054] 图 34 是本发明第十一实施例的端子与塑胶座体立体分解图。

[0055] 图 35 是本发明第十一实施例的剖面图。

[0056] 图 36 是本发明第十一实施例的使用状态立体图。

[0057] 图 37 是本发明第十一实施例的二排端子对接立体图。

[0058] 图 38 是本发明第十一实施例的二排端子对接的展开平面图。

[0059] 图 39 是本发明第十二实施例的二排端子立体分解图。

[0060] 图 40 是本发明第十二实施例的二排端子对接立体图。

[0061] 图 41 是本发明第十三实施例的二排端子立体分解图。

[0062] 图 42 是本发明第十三实施例的二排端子对接立体图。

[0063] 图 43 是本发明第十四实施例的剖面侧视图。

[0064] 图 44 是本发明第十四实施例的塑胶座体的后视图。

[0065] 图 45 是本发明第十四实施例的使用状态图。

[0066] 图 46 是本发明第十四实施例的端子冲压制造流程示意图。

[0067] 图 47 是本发明第十五实施例的端子冲压制造流程示意图。

[0068] 图 48 是本发明第十六实施例的端子冲压制造流程示意图。

[0069] 图 49 是本发明第十七实施例的立体分解图。

[0070] 图 50 是本发明第十七实施例的剖面侧视图。

[0071] 图 51 是本发明第十七实施例的端子冲压制造流程示意图。

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[0072] 图 52 是本发明第十八实施例的端子冲压制造流程示意图。

[0073] 料带 10 端子 20 弹动部 21 延伸部 22 固定部 23 接脚部 24 切痕 25 延伸部第一段 26 延伸部第二段 27 固定部第一段 28 固定部第二段 29 倒刺 210 弹动部第一段 211 弹动部第二段 212 凹部 213 接点 215 连接凸部 217 倒刺 218 凹部 219 辅助力臂 220 第一端 221 第二端 222 连接片 225 间隙 226 塑胶座体 30 端子槽 31 连接槽 32 开口 33 导入斜面 34 抵靠面 35 卡槽 36 后盖 38 抵缘 39 凸部 310 插孔 312 金属外壳 40 金属上盖 45 顶面 46 第一侧面 47 第一侧面 48 塑胶内座 50 凸缘 51 放置区 52 端子槽 53 第一壁 54 第二壁 55 锡球槽 56 锡球 57 通道 58 金属上盖 60 顶面 61 侧面 62 透空区 63 凸片 64 枢接部 65 公接头 68 端子 69 摇杆 70 第一杆 71 第二杆 72 凸杆 73 手把 74 上模 81 下模 82 冲孔 83 光滑面 86 毛边 87 金属外座 90 底面 91 侧面 92 透空区 93 第一枢接部 94 第二枢接部 95。第一排端子 1 第二排端子 2

【具体实施方式】

[0074] 请参阅图 1、图 2、图 3 及图 4，本实施例包括有：一塑胶座体 30 及二排端子 20，其中：

[0075] 该塑胶座体 30 呈纵长条形状，其设有二排间隔排列的端子槽 31，该两排端子槽 31 之间形成一纵长条形状的连接槽 32，该端子槽 31 设有一开口 33 与该连接槽 32 相通，该连接槽 32 的开口朝上且上端设有导入斜面 34，该端子槽 31 在开口 33 上端设有一抵靠面 35 且下段设有一卡槽 36。

[0076] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，每一排端子 20 是连接一料带 10，其为一金属片对撕冲压所形成相同二排端子的其中一排端子，该一排端子 20 组装于一排端子槽 31 后再将该料带 10 折断分离，该端子 20 由一端至另一端设有一弹动部 21、一延伸部 22、一固定部 23 及一接脚部 24；该弹动部 21 设有第一、二端，该延伸部 22 设有第一、二端，该固定部 23 设有第一、二端，该弹动部 21 的第一端为端子的尾端，该弹动部的第二端连该接延伸部 22 第一端，该延伸部 22 第二端连接该固定部 23 的第一端，该固定部 23 的第二端连接该接脚 24 及该料带 10 且该处设有易于折断的切痕 25，该固定部 23 宽度较该延伸部 22 宽度为宽借以与端子槽 31 的卡槽 36 卡定，该固定部 23 由第一端至第二端设成不同宽度的固定部第一段 28 和固定部第二段 29，固定部第二段宽度 A 较固定部第一段宽度 B 为宽且两者间设有宽度更为凸出的倒刺 210；该延伸部 22 宽度较该弹动部 21 宽度为宽，该延伸部 22 为一弯折的弹臂且由第一端至第二端设成等长的延伸部第一段 26 及延伸部第二段 27，延伸部第二段宽度 C 较延伸部第一段宽度 D 为宽，该延伸部第一段 26 设有一凸出的接点 215，该接点 215 由开口 33 伸出至该连接槽 32；该弹动部 21 尾端弹性抵靠该抵靠面 35，该弹动部 21 由第一端至第二端设成不同宽度的弹动部第一段 211 和弹动部第二段 212，弹动部第二段宽度 E 较弹动部第一段宽度 F 为宽且两者间设有宽度更小的凹部 213，该接脚部 24 伸出该塑胶座体 30 下端。

[0077] 本实施例的特点在于该每一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部

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位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为弹动部 21、延伸部 22 及固定部 23。

[0078] 该两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，该其中一端子的固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，该延伸部 22 的形状可反向且反面无缝隙接合于两相邻端子的延伸部 22 间隔区域，亦即两相邻端子的延伸部 22 间隔区域等于该延伸部 22 的面积。

[0079] 该两相邻端子的弹动部第一段的间距 X 等于该固定部第二段宽度 A，该两相邻端子的弹动部第二段的间距 Y 等于该固定部第一段宽度 B，该两相邻端子的延伸部第一段的间距 Z 等于该延伸部第二段宽度 C，该延伸部第一段 26 的长度和该延伸部第二段 27 的长度相同，该弹动部第二段 212 的长度和固定部第一段 28 的长度相同，弹动部第一段宽度 F+ 固定部第二段宽度 A ＝延伸部第一段宽度 D+ 延伸部第二段宽度 C ＝弹动部第二段宽度 E+ 固定部第一段宽度 B ；该一排端子展开成平面时，该固定部 23 的形状可无缝隙接合于两相邻端子的弹动部 21 间隔区域，即该固定部第一段 28 无缝隙靠合该两相邻端子的弹动部第二段 212，该固定部第二段 29 无缝隙靠合该两相邻端子的弹动部第一段 211，该倒刺 210 可无缝隙接合该两相邻端子的凹部 213，另外，该两相邻端子的延伸部 22 间隔区域等于该延伸部 22 的面积。

[0080] 借由以上构造，端子在冲压制造上如图 5 所示，二排间隔排列相连接的端子可由一片金属片完全对接排列冲压，即第一排端子 1 的各端子 20 的固定部 23 恰可对接于第二排端子 2 的两相邻端子 20 的弹动部 21 之间，第一排端子 1 的各端子 20 的延伸部第二段 27 恰可对接于第二排端子 2 的两相邻端子 20 的延伸部第一段 26 之间，如此一金属片先完全无缝隙对撕成二排端子，再拉开后弯折弹动部 21、延伸部 22 及接脚部 24。

[0081] 上述端子在制造上，二排端子对接冲压时除了相连的料带 10 外完全无废料形成，明显可节省材料，降低制造成本。

[0082] 请参阅图 6 及图 7，本发明以一金属片对撕冲压成二排相同端子时，由于模具的上模 81 的宽度 s 必然较下模 82 的冲孔 83 的宽度 b 为小，由于第一排端子 1 的端子的弹动部 21 与第二排端子 2 的端子的固定部 23 无缝对撕，故冲压后第一排端子 1 的端子的弹动部 21 的切断面的上段形成光滑面 86 而下段形成毛边 87，然而第二排端子 2 的端子的固定部 23 的切断面则是下段形成光滑面 86 而上段形成毛边 87，光滑面 86 的宽度 b 较毛边 87 的宽度 s 稍大，第二排端子 2 的端子的固定部 23 接合于第一排端子 2 的端子的弹动部 21 的间隔区域时，两者接合处的切断面相互为毛边 87 接合光滑面 86，故可成密合连接。

[0083] 如此冲压后第一排端子 1 的端子的弹动部 21 上段宽度与第二排端子 2 的端子的固定部 23 下段宽度均为 b，而第一排端子 1 的端子的弹动部 21 下段宽度与第二排端子 2 的端子的弹动部上段宽度均为 s，当第一排端子 1 的端子 20 成反面时固定部的切断面即与第二排端子 2 的端子 20 的固定部的切断面相同。

[0084] 请参阅图 8，第一排端子 1 其中一端子成反面反向接合于两端子之间时其固定部 23’ 的切断面与该两相邻端子的弹动部 21 的切断面是相互为毛边 87 接合光滑面 86，故可成密合连接。

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[0085] 请参阅图 9，第一排端子 1 其中一端子成同面反向接合于两端子之间时其固定部的切断面与该两相邻端子 20 的弹动部的切断面是相互为光滑面 86 接合光滑面 86，故无法密合连接。

[0086] 请参阅图 10，为本发明第二实施例，其大致与第一实施例相同，其差异在于该端子 20 的延伸部第一段 26 的板面刺破冲压出一凸出的接点 215。

[0087] 请参阅图 11 及图 12，为本发明第三实施例，其大致与第一实施例相同，其差异在于该端子 20 的延伸部 22 只有一个延伸部宽度 H，该两相邻端子的延伸部的间距 W 等于该延伸部宽度 H，该弹动部第二段 212 的长度和固定部第一段 28 的长度相同，弹动部第一段宽度 F+ 固定部第二段宽度 A ＝ 2 倍延伸部宽度 H ＝弹动部第二段宽度 E+ 固定部第一段宽度 B。

[0088] 本实施例端子在冲压制造上如图 13 所示，二排间隔排列相连接的端子可由一片金属片完全对接排列冲压，即第一排端子 1 的各端子 20 的固定部第二段 29 恰可对接于第二排端子 2 的两相邻端子 20 的弹动部第一段 211 之间，第一排端子 1 的各端子 20 的固定部第一段 28 恰可对接于第二排端子 2 的两相邻端子 20 的弹动部第二段 212 之间，第一排端子 1 的各端子 20 的延伸部 22 恰可对接于第二排端子 2 的两相邻端子 20 的延伸部 22 之间，如此一金属片先完全无缝隙对撕成二排端子，再拉开后弯折弹动部 21、延伸部 22 及接脚部 24。

[0089] 请参阅图 14，为本发明第四实施例，其大致与第一实施例相同，其差异在于该端子 20 的固定部 23 皆等宽只有一个宽度，而该弹动部 21 亦等宽只有一个宽度，而该延伸部 22 宽度由上而下渐宽，该两相邻端子的弹动部的间距 P 等于该固定部宽度 Q，该端子 20 展开成平面时，该两相邻端子的延伸部 22 间隔区域等于该延伸部 22 的面积；借由以上构造，二排间隔排列相连接的端子可由一片金属片完全对接排列冲压。

[0090] 请参阅图 15 及图 16，为本发明第五实施例，其是为一讯号线的接头，其包括有：一塑胶座体 30、二排端子 20、及一金属外壳 40，其中；

[0091] 该塑胶座体 30 设有二排间隔排列的端子槽 31，该两排端子槽 31 呈一上一下排列并相面对，两排端子槽 31 之间形成一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通，该连接槽 32 的前端为插入口且设有导入斜面 34，该端子槽 31 后端设有一卡槽 36 且前端设有一抵靠面 35。

[0092] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、一延伸部 22、一固定部 23 及一接脚部 24，本实施例的端子 20 的构造大致与第一实施例相同，该延伸部 22 设有第一、二端，该延伸部 22 设有第一、二端，该固定部 23 设有第一、二端，该弹动部 21 的第一端为端子的尾端，该弹动部 21 的第二端连该接延伸部 22 第一端，该延伸部 22 第二端连接该固定部 23 的第一端，该固定部 23 的第二端连接该接脚 24 及该料带 10 且该处设有易于折断的切痕 25，该固定部 23 宽度较该延伸部 22 宽度为宽借以与端子槽 31 的卡槽 36 卡定，该弹动部 21 弹性抵靠该塑胶座体的抵靠面 35，本实施例与第一实施例的差异在于本实施例的端子 20 是呈横向延伸，该延伸部 22 由第一端至第二端呈同一宽度，该延伸部 22 横向延伸呈一弯折的弹臂且可上下弹动，其接近末端设有一凸出的接点 215，该接点 215 伸出端子槽 31 至该连接槽 32。

[0093] 该金属外壳 40 包覆于该塑胶座体 30 外。

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[0094] 请参阅图 17，是本实施例的冲压制造流程示意图，本实施例的端子 20 的构造大致与第一实施例相同，同样是该两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，且该端子的延伸部 22 的形状可反向且反面无缝隙接合于两相邻端子的延伸部 22 间隔区域。

[0095] 借由以上构造，端子在冲压制造上，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的延伸部 22 及固定部 23 分别无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 及弹动部 21 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折延伸部 22。

[0096] 请参阅图 18、图 19 及图 20，是为本发明第六实施例，其是为一 Expresscard 连接器，其包括有：一塑胶座体 30、一排端子 20、及一金属上盖 45，其中：

[0097] 该塑胶座体 30 设有一排间隔排列的端子槽 31 及一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通，该端子槽 31 前端亦有抵靠面 35 且后端设有卡槽。

[0098] 该一排端子 20 设于该塑胶座体 30 的一排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、延伸部 22、一固定部 23 及一接脚部 24，该端子 20 构造大致与第五实施例相同，延伸部 22 亦为上下弹动型态，其差异在于本实施例的接脚部 24 是往下弯折后再形成一水平接脚。

[0099] 该金属上盖 45 盖合于该塑胶座体 30 上方，其设有一顶面 46 及相对的第一、二侧面 47、48。

[0100] 本实施例的端子 20 的构造大致与第五实施例相同，同样是两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，其中一端子的固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，且该端子的延伸部 22 的形状可反向且反面无缝隙接合于两相邻端子的延伸部 22 间隔区域；借此，达到端子在冲压制造上节省材料。

[0101] 请参阅图 21、图 22、图 23 及图 24，是为本发明第七实施例，本实施例为一种记忆卡模组连接器，其包括有：一塑胶座体 30 及二排端子 20，其中：

[0102] 该塑胶座体 30 呈纵长条形状，其设有二排间隔排列的端子槽 31，该两排端子槽 31 呈一间距并相面对且之间形成一纵长条形状的连接槽 32，该端子槽 31 呈上下方向延伸且设有一开口 33 与该连接槽 32 相通，该连接槽 32 的开口朝上且上端设有导入斜面 34，该端子槽 31 下段设有一卡槽 36。

[0103] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，每一排端子 20 是连接一料带 10，该一排端子 20 组装于一排端子槽 31 后再将该料带 10 折断分离，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23 及一接脚部 24；该固定部 23 下端连接该料带 10 且该处设有易于折断的切痕 25，该固定部 23 的宽度较该弹动部 21 的宽度和接脚部 24 的宽度为宽，该固定部 23 设有宽度更为凸出的倒刺 210 借以与端子槽 31 的卡槽 36 卡定；该弹动部 21 为单一宽度，其设有第一、二端 221、222，第二端 222 与固定部连接，第一

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端 221 为开放端，该弹动部 21 上下延伸呈一弯折的弹臂且可侧向弹动，其接近末端设有一凸出的接点 215，该接点 215 由开口 33 伸出端子槽 31 至该连接槽 32，该接脚部 24 伸出该塑胶座体 30 下端。

[0104] 本实施例的特点在于该每一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为弹动部 21。

[0105] 该同一排两相邻端子的弹动部 21 的间距 A 等于该弹动部 21 的宽度 B，即该一排端子展开成平面时，其中一端子的弹动部 21 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域。

[0106] 借由以上构造，端子在冲压制造上如图 25 所示，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的弹动部 21 无缝隙对接于第二排端子 2 的两相邻端子 20 的弹动部 21 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折弹动部 21 及接脚部 24。

[0107] 上述端子在制造上，二排端子对接冲压时由于二排端子的延伸部是为无缝接合，而该弹动部 21 的长度占整体端子很大比率，故在制造上明显可节省材料，降低制造成本。

[0108] 二排端子的固定部 23 虽没有相互对接，由于固定部 23 宽度甚宽，所以打掉的废料亦很少了，如图 2 的斜线部份即为两相邻端子的固定部间隔所打掉的废料。

[0109] 请参阅图 26，是为本发明第八实施例，其大致与第七实施例相同，其差异在于本实施例的端子 20 的弹动部 21 由第一端 221 至第二端 222 渐宽，该同一排两相邻端子 20 的弹动部 21 由第一端 221 至第二端 222 依序的间距 C 等于该弹动部 21 由第二端 222 至第一端 221 依序的宽度 D，即该一排端子展开成平面时，其中一端子的弹动部 21 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域。

[0110] 请参阅图 27 及图 28，是为本发明第九实施例，其是为一讯号线的接头，其包括有：一塑胶座体 30、二排端子 20、及一金属外壳 40，其中：

[0111] 该塑胶座体 30 设有二排间隔排列的端子槽 31，该两排端子槽 31 呈一上一下排列并相面对，两排端子槽 31 之间形成一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通，该连接槽 32 的前端为插入口且设有导入斜面 34，该端子槽 31 后端设有一卡槽 36。

[0112] 该二排端子 20 设于该塑胶座体 30 的二排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23 及一接脚部 24，该固定部 23 的宽度较该弹动部 21 的宽度和接脚部 24 的宽度为宽借以与端子槽 31 的卡槽 36 卡定，该弹动部 21 横向延伸呈一弯折的弹臂且可上下弹动，其接近末端设有一凸出的接点 215，该接点 215 伸出端子槽 31 至该连接槽 32，该接脚部 24 伸出该塑胶座体 30 外。

[0113] 该金属外壳 40 包覆于该塑胶座体 30 外。

[0114] 请参阅图 29，是本实施例的冲压制造流程示意图，本实施例的端子 20 的构造大致与第七实施例相同，同样是同一排两相邻端子的弹动部 21 的间距 A 等于该弹动部 21 的宽度 B，即该一排端子展开成平面时，该弹动部 21 的形状可反向无缝隙接合于两相邻端

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子的弹动部 21 间隔区域，借由以上构造，端子在冲压制造上，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的弹动部 21 无缝隙对接于第二排端子 2 的两相邻端子 20 的弹动部 21 之间，如此该金属片先对切成第一、二排端子 1、2，再拉开后弯折弹动部 21。

[0115] 请参阅图 30、图 31 及图 32，是为本发明第十实施例，其是为一 Expresscard 连接器，其包括有：一塑胶座体 30、一排端子 20、及一金属上盖 45，其中：

[0116] 该塑胶座体 30 设有一排间隔排列的端子槽 31 及一连接槽 32，该端子槽 31 呈前后方向延伸且与该连接槽 32 相通。

[0117] 该一排端子 20 设于该塑胶座体 30 的一排端子槽 31，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23 及一接脚部 24，该固定部 23 的宽度较该弹动部 21 的宽度和接脚部 24 的宽度为宽借以与端子槽 31 的卡槽卡定，该弹动部 21 横向延伸呈一弯折的弹臂且可上下弹动，其接近末端设有一凸出的接点 215，该接点 215 伸出端子槽 31 至该连接槽 32，该接脚部 24 伸出该塑胶座体 30 下端。

[0118] 该金属上盖 45 盖合于该塑胶座体 30 上方，其设有一顶面 46 及相对的第一、二侧面 47、48。

[0119] 本实施例的端子 20 的构造大致与第九实施例相同，同样是同一排两相邻端子的弹动部 21 的间距 A 等于该弹动部 21 的宽度 B，即该一排端子展开成平面时，其中一端子的弹动部 21 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，借此，达到端子在冲压制造上节省材料。

[0120] 请参阅图 33、图 34、图 35 及图 36，是为本发明第十一实施例，其是为一晶片连接器，其包括有：一金属外座 90、一塑胶内座 50、一金属上盖 60、一摇杆 70、及多排端子 20，其中：

[0121] 该金属外座 90 设有一底面 91 及向上的两侧面 92，该底面 91 的中央形成一透空区 93，其前端两侧各设有一第一枢接部 94，而后端两侧各设有一第二枢接部 95。

[0122] 该塑胶内座 50 设于该金属外座 90 上，其上周缘设有向上的凸缘 51 而围成一放置一晶片的放置区 52，该放置区 52 间隔排列设有多排端子槽 53，该多排端子槽 53 对应该透空区 93，端子槽 53 设有与前、后排端子槽相隔的第一壁 54 及第二壁 55，端子槽 53 下方对应设有一锡球槽 56，该锡球槽 56 设有一锡球 57，该端子槽 53 与锡球槽 56 设有通道 58 相通。

[0123] 该金属上盖 60 是设有一顶面 61 及向下的两侧面 62，该顶面 61 中间设有一透空区 63，其前端设有一凸片 64，其后端两侧各设有一呈弯弧状的枢接部 65。

[0124] 该摇杆 70 设有相互呈垂直的第一杆 71 及第二杆 72，该第二杆 72 枢接于金属外座 90 前端的第一枢接部 94 且中段弯曲形成一凸杆 73，该第一杆 71 外端弯曲形成一手把 74，当第一杆 71 往后摇动时，该凸杆 73 可压制该金属上盖 60 的凸片 64 而使该金属上盖 60 压住该晶片 37。

[0125] 该多排端子 20 设于该塑胶座体 50 的多排端子槽 53，每一排端子 20 是连接一料带 10，该一排端子 20 组装于一排端子槽 53 后再将该料带 10 分离，该端子 20 由一端至另一端设有一弹动部 21、一固定部 23、及一接脚部 24，该固定部 23 较该弹动部 21 及接脚部 24 为宽借以定位于端子槽的第一壁 54，该固定部 23 下端连接该接脚部 24，固定部 23

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上端中间连接该弹动部 21 且上端两侧各设有一连接凸部 217 与该料带 10 相连，该连接凸部 217 与该料带 10 相连处设有切痕 25，借以易于折断而使端子 20 与料带 10 分离，该弹动部 21 为一弯折的弹臂，该弹动部 21 先延伸至第二壁 55 再回转向固定部 23 延伸并途过该第一壁 54 至前排的端子槽 53 上方，该弹动部 21 接近末端设有一接点 28，该接点 28 为端子的最高点且凸出该端子槽 53 至该放置区 52，当该接点 28 受力时弹动部 21 可上下弹动，该接脚部 24 是由该通道 58 伸至该锡球槽 56，该接脚部 24 弯折挡扣该锡球 57 一侧。

[0126] 本实施例的特点在于该每一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子具有一对撕冲切部位相互无缝对接，该一排端子展开成平面时，其中一端子反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为固定部 23 和接脚部 24。

[0127] 该相邻端子 20 的接脚部间距 X 等于该固定部 23 宽度 Y，该一端子的固定部 23 的形状可反向且反面接合于二相邻端子的接脚部 24 间隔区域且无缝隙靠合该二相邻端子的接脚部 24。

[0128] 借由以上构造，由于相邻端子 20 的接脚部间距 X 等于该固定部 23 的宽度 Y，请参阅图 37 及图 38，在冲压制造上，二排间隔排列相连接的端子可对接排列由同一金属片冲压，即第一排端子 1 的各端子 20 的固定部 23 恰可对接于第二排端子 2 的相邻端子 20 的接脚部 24 间，如此一金属片冲压出二排端子，除了相连的料带外完全无废料形成，明显可节省材料，降低制造成本。

[0129] 请参阅图 39 及图 40，是为本发明第十二实施例，本实施例大致与第十一实施例相同，其差别在于本实施例端子 20 的弹动部 21 是连接于该固定部 23 上端一侧，该固定部 23 上端另一侧则设有一连接凸部 217 与该料带 10 相连。

[0130] 请参阅图 41 及图 42，是为本发明第十三实施例，本实施例大致与第十一实施例相同，其差别在于本实施例端子 20 的固定部 23 上端一侧设有一连接凸部 217 与该料带 10 相连，该弹动部 21 是连接于该连接凸部 217 一侧且转折与连接凸部 217 成 90 度夹角，另外，该端子 20 的固定部 23 设有宽度更为凸出的倒刺 218，该接脚部 23 设有宽度更小的凹部 219，该倒刺 218 可无缝隙接合该凹部 219。

[0131] 请参阅图 43 及图 44，是为本发明第十四实施例，其是为一 D-SUB 电连接器，其包括有：一塑胶座体 30、二排端子 20、及一金属外壳 40，其中：

[0132] 该塑胶座体 30 是为架高型式者，其内设有多个端子槽 31 及多个连接槽 32，该多数的端子槽 31 及多个连接槽 32 由上而下呈二排，其前端设有一凸部 310，该凸部 310 前端设有多个插孔 312 对应该多个连接槽 32，及设有凹陷的卡槽 36，另该每一端子槽 31 上端设有宽度较小的开口 33 与该连接槽 32 相通，使该开口的二侧形成抵缘 39 及设有凹陷的卡槽 36，另外，设有一后盖 38 盖于该塑胶座体 30 后方。

[0133] 该二排端子 20 对应组装于该塑胶座体的二排端子槽 31，该每一端子 20 由一端至另一端依序设有一弹动部 21、一固定部 23 及一接脚部 24，该弹动部 21 为单一力臂且板面呈水平并可弹动，该弹动部 21 接近末端的板面刺破冲压凸出一宽度较窄的接点 215，该弹动部 21 末端反折设有一与该接点 215 反向凸出的辅助力臂 220，该弹动部 21 弹性抵于该抵缘 39，该接点 215 凸出至该连接槽 32，该辅助力臂 220 抵于该端子槽 31 的一壁

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面，该固定部 23 设有第一、二端，第一端连接弹动部 21，第二端连接接脚部 24，

[0134] 该固定部 23 与该卡槽 36 卡定，该固定部 23 弯折成二垂直板面，纵向板面向下延伸并连接该接脚部 24，该接脚部 24 的板面弯折使截面呈 ㄇ 形状并伸出该塑胶座体。

[0135] 该金属外壳 40 套合于塑胶座体 30 前端，其包覆该凸部 310 的周边面使凸部前面的插孔 312 露出。

[0136] 请参阅图 45，借由以上构造，当公接头 68 插入时，公接头 68 的二排端子 69 插入该二排连接槽 32，该端子 69 挤压该接点 215，使该弹动部 21 向下弹动，同时该辅助力臂 220 亦被压缩，如此借由该弹动部 21 的弹性及辅助力臂 220 的弹性面能提供该公接头 68 的端子 69 与接点 215 良好的弹性接触。

[0137] 本实施例的特点在于该每一排端子 20 是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子 20 具有一对撕冲切部位相互无缝对接，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为固定部 23，一排端子中二相邻端子的固定部 23 由第一端至第二端依序的间距等于其中一端子的固定部 23 由第二端至第一端依序的宽度，本实施例的固定部 23 由第一端至第二端为同一宽度，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的固定部 23 与二相邻端子的固定部 23 无缝接合。

[0138] 本实施例的端子 20 在冲压制造上如图 46 所示，二排间隔排列相连接的端子是由一片金属片对接排列冲压而成，由于第一排端子 1 的各端子 20 的固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的固定部 23 之间，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折固定部 23。

[0139] 请参阅图 47，是为本发明第十五实施例，其大致与第十四实施例相同，其差异在于本实施例的塑胶座体较第十四实施例为低，故固定部 23 及接脚部 24 均较短，本实施例的对撕冲切部位亦为固定部 23，该固定部 23 为均一宽度，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的固定部 23 与二相邻端子的固定部 23 无缝接合。 本实施例端子 20 在冲压制造上，二排间隔排列相连接的端子是由一片金属片对接排列冲压而成，由于第一排端子 1 的各端子 20 的固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的固定部 23 之间，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折固定部 23。

[0140] 请参阅图 48，是为本发明第十六实施例，其大致与第十五实施例相同，本实施例的一排端子 20 是连接一料带 10，其为一金属片对撕冲压所形成相同二排端子的其中一排端子，每一端子 20 由一端至另一端设有一弹动部 21、一固定部 23、及一接脚部 24；该弹动部 21 的板面冲压凸出一接点 215，该接脚部 24 的两侧各无缝接合一连接片 225，该二连接片 225 是一端连接料带，另一端连接于固定部 23 一端，并设有折痕以方便折断。

[0141] 本实施例特点同样在于该每一排端子 20 是为一金属片对撕冲压所形成相同二排端子的其中一排，该二排端子的每一端子 20 具有一对撕冲切部位相互无缝对接，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的对撕冲切部位与二相邻端子的对撕冲切部位无缝接合，本实施例的对撕冲切部位为弹动

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部 21、固定部 23 和接脚部 24 两侧的连接片 225，该一排端子 20 展开成平面时，其中一端子 20 反向且反面接合于二相邻端子之间时，该一端子的弹动部 21 及固定部 23 和二相邻端子的接脚部 24 两侧的连接片 225 无缝接合。

[0142] 本实施例端子 20 在冲压制造上，二排间隔排列相连接的端子是由一片金属片对接排列冲压而成，由于第一排端子 1 的各端子 20 的弹动部 21 和固定部 23 无缝隙对接于第二排端子 2 的两相邻端子 20 的接脚部 24 两侧的连接片 225，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折固定部 23。

[0143] 请参阅图 49 及图 50，是为本发明第十七实施例，其是为一直立式 D-SUB 电连接器，其包括有：一塑胶座体 30、三排端子 20、及一金属外壳 40，其中：

[0144] 该塑胶座体 30 是直立式者，其内设有多个端子槽 31 及多个连接槽 32，该多数的端子槽 31 及多个连接槽 32 呈三排，其上端设有一凸部 310，该凸部 310 前端设有多个插孔 312 对应该多个连接槽 32，该每一端子槽 31 如同第十四实施例设有宽度较小的开口 33 与该连接槽 32 相通，该开口的二侧形成抵缘 39。

[0145] 该三排端子 20 对应组装于该塑胶座体的三排端子槽 31，该每一端子 20 由一端至另一端依序设有一弹动部 21、一延伸部 22、一固定部 23 及一接脚部 24，该弹动部 21 为单一力臂且板面呈纵向并可弹动，该弹动部 21 接近末端的板面刺破冲压凸出一宽度较窄的接点 215，该弹动部 21 弹性抵于该抵缘 39，该接点 215 凸出至该连接槽 32，该固定部 23 及延伸部 22 与该端子槽 31 卡定，该接脚部 24 伸出该塑胶座体 30。

[0146] 该金属外壳 40 套合于塑胶座体 30 前端，其包覆该凸部 310 的周边面使凸部上面的插孔 312 露出。

[0147] 请参阅图 51，本实施例的一排端子是为一金属片对撕冲压所形成相同二排端子的其中一排端子，其包括有：一料带 10 及多个端子 20，其中：

[0148] 该料带 10，其上设有多个间隔排列的长形孔 11。

[0149] 该多个端子 20 呈间隔排列连接于该料带 10，该弹动部 21 设有第一、二端，该延伸部 22 设有第一、二端，该固定部 23 设有第一、二端，该弹动部 21 的第一端为端子的尾端，该弹动部 21 的第二端连该接延伸部 22 第一端，该延伸部 22 第二端连接该固定部 23 的第一端，该固定部 23 的第二端连接该接脚 24 及该料带 10，该固定部 23 宽度较弹动部 21 宽度为宽，本实施例的端子的弹动部 21 及固定部 23 由第一端至第二端呈同一宽度，而该延伸部 22 由第一端至第二端则呈凸凹间隔形状。

[0150] 本实施例的端子 20 的构造大致与第一实施例相同，同样是该两相邻端子的弹动部 21 由第一端至第二端依序的间距等于该固定部 23 由第二端至第一端依序的宽度，且该两相邻端子的延伸部由第一端至第二端依序的间距等于该延伸部由第二端至第一端依序的宽度，该一排端子展开成平面时，该固定部 23 的形状可反向且反面无缝隙接合于两相邻端子的弹动部 21 间隔区域，该延伸部 22 的形状可反向无缝隙接合于两相邻端子的延伸部 22 间隔区域。

[0151] 借由以上构造，端子在冲压制造上，二排间隔排列相连接的端子可由一片金属片对接排列冲压，由于第一排端子 1 的各端子 20 的延伸部 22 及固定部 23 分别无缝隙对接于第二排端子 2 的两相邻端子 20 的延伸部 22 及弹动部 21 之间，如此该金属片先对撕成第一、二排端子 1、2，再拉开后弯折冲压该弹动部 21。

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[0152] 请参阅图 52，是为本发明第十八实施例，本实施例的端子 20 的构造大致与第十七实施例相同，其差异仅在于本实施例的第一排端子 1 的端子 20 的延伸部 22 与第一排端子 2 的端子 20 的延伸部 22 对接时形成部份间隙 226。

[0153] 在较佳实施例的详细说明中所提出的具体的实施例仅为了易于说明本发明的技术内容，而并非将本发明狭义地限制于该实施例，在不超出本发明的精神及以下申请专利范围的情况，可作种种变化实施。

Samsung, EX1019, p. 606

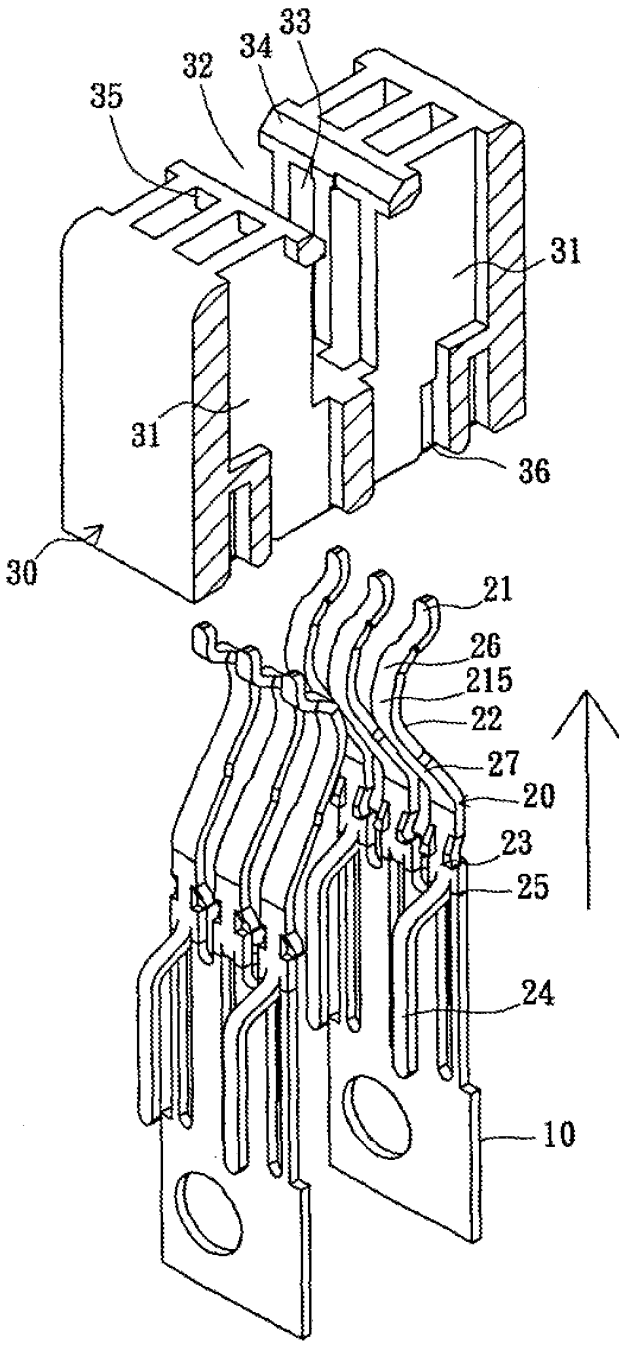


图 1

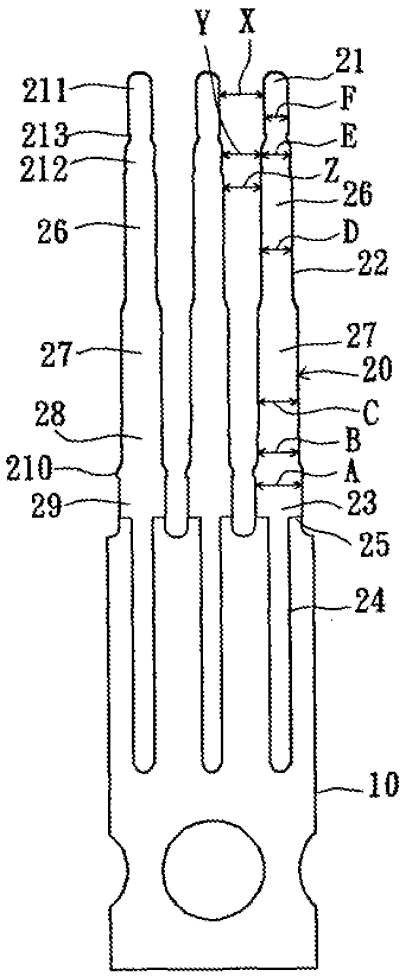


图 2

Samsung, EX1019, p. 607

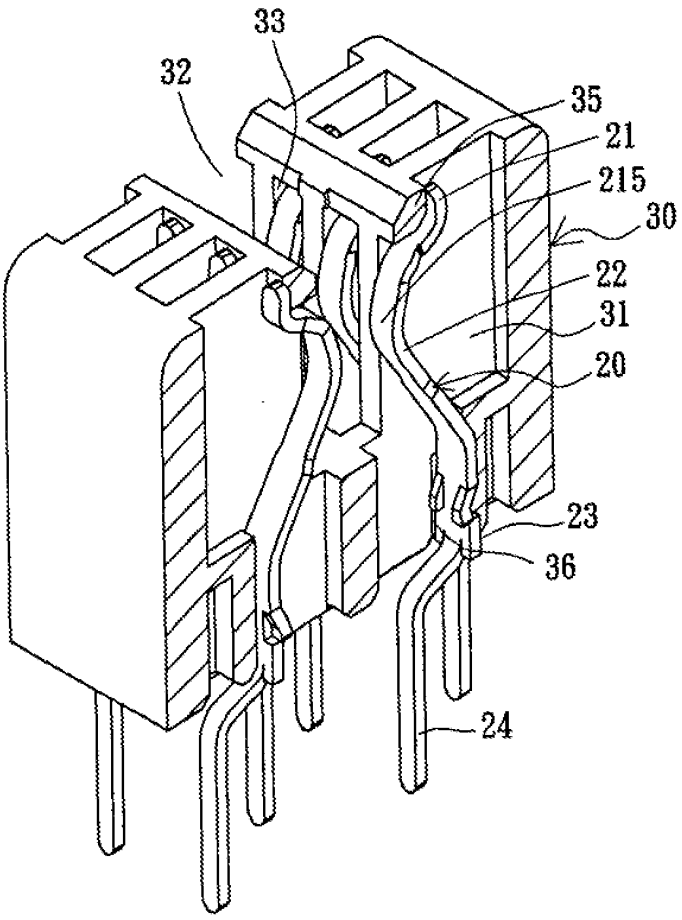


图 3

Samsung, EX1019, p. 608

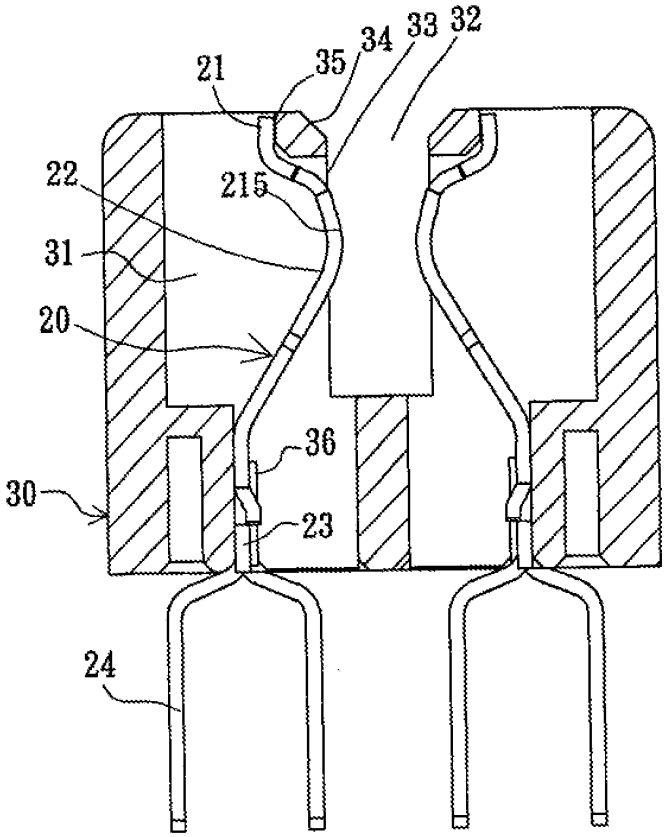


图 4

Samsung, EX1019, p. 609

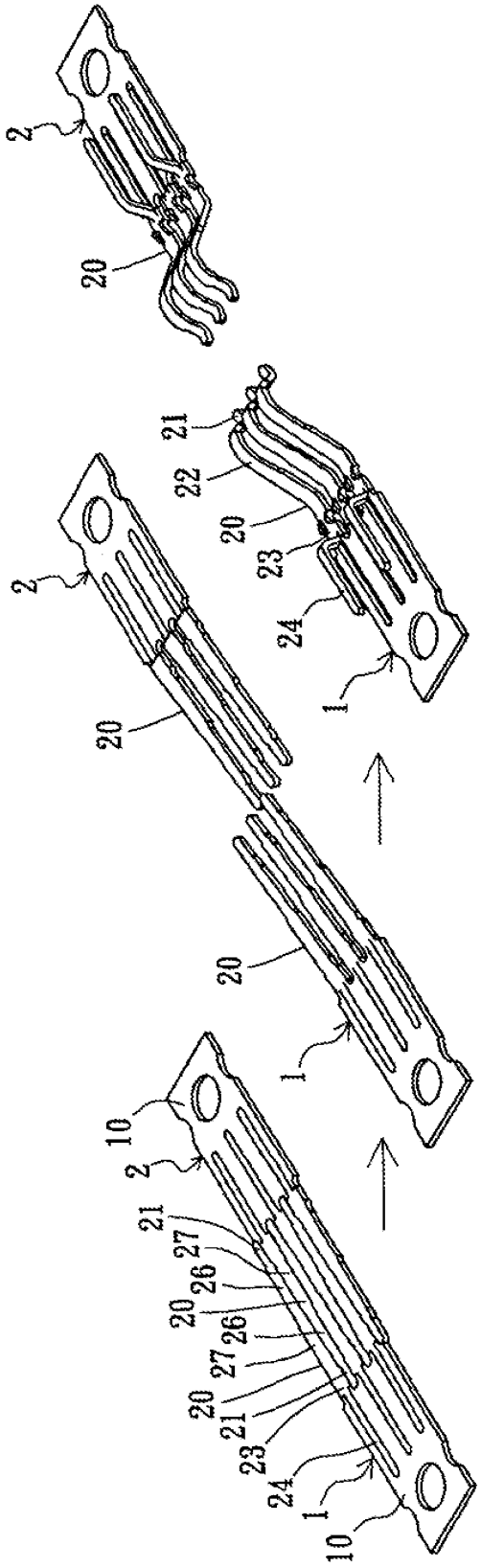


图 5

Samsung, EX1019, p. 610

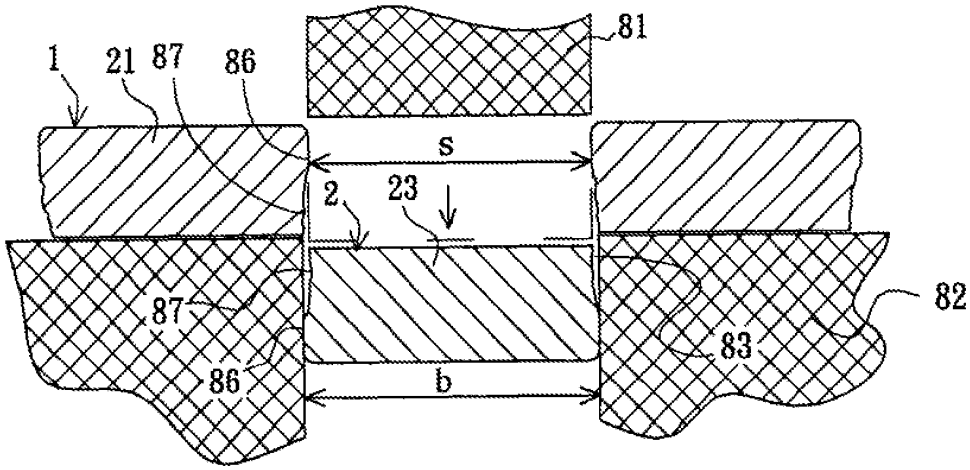


图 6

Samsung, EX1019, p. 611

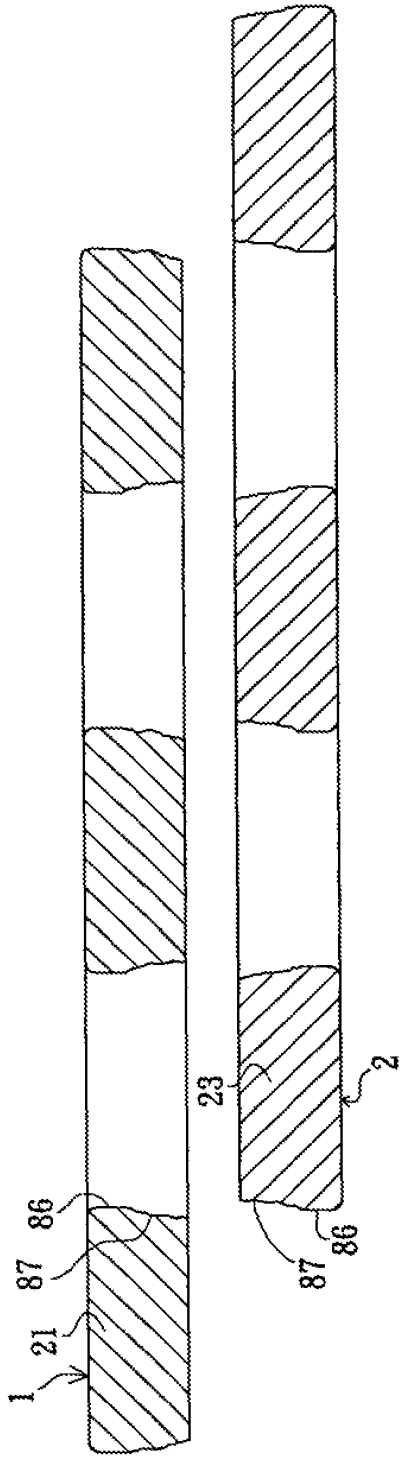


图 7

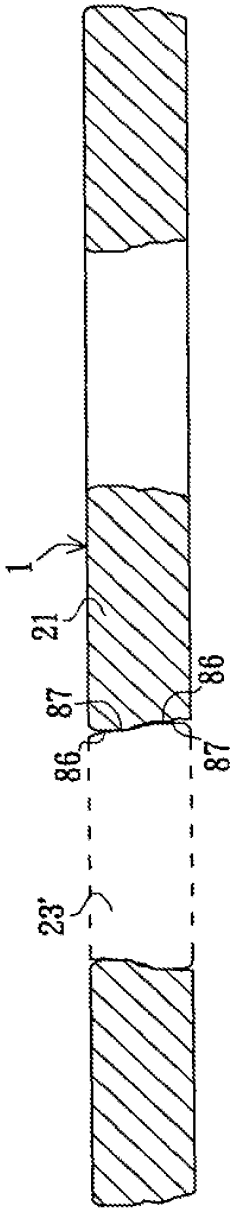


图 8

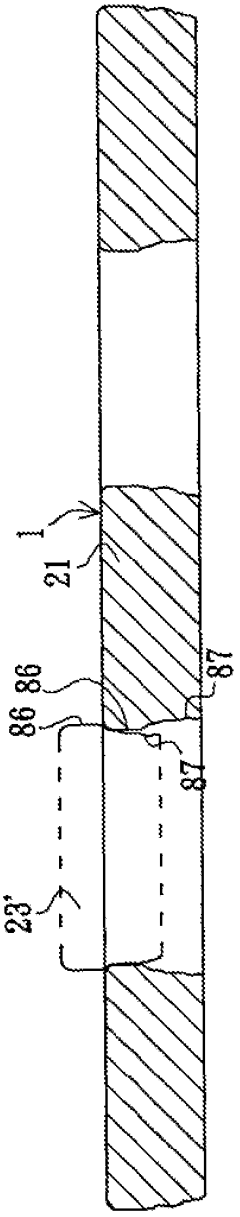


图 9

Samsung, EX1019, p. 612

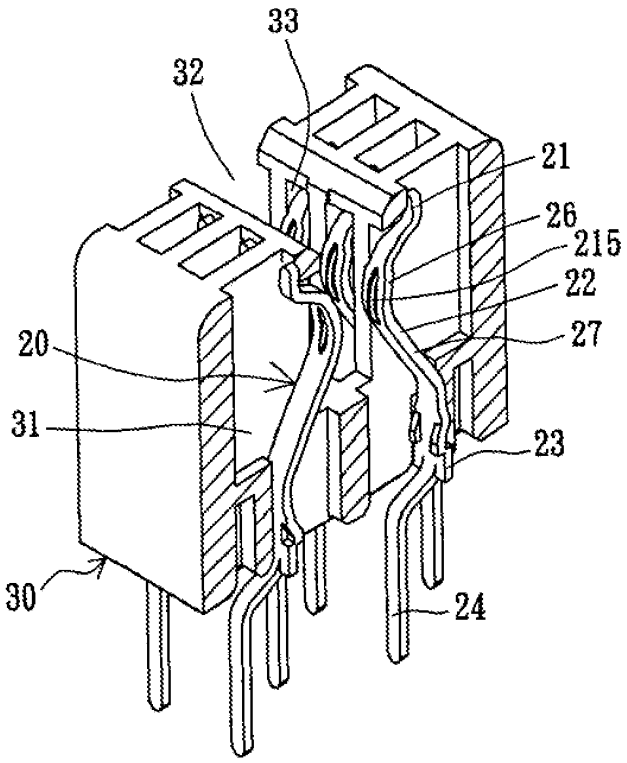


图 10

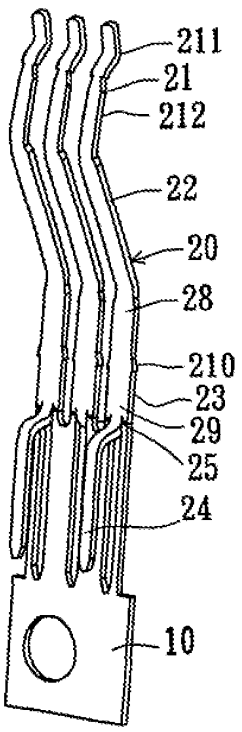


图 11

Samsung, EX1019, p. 613

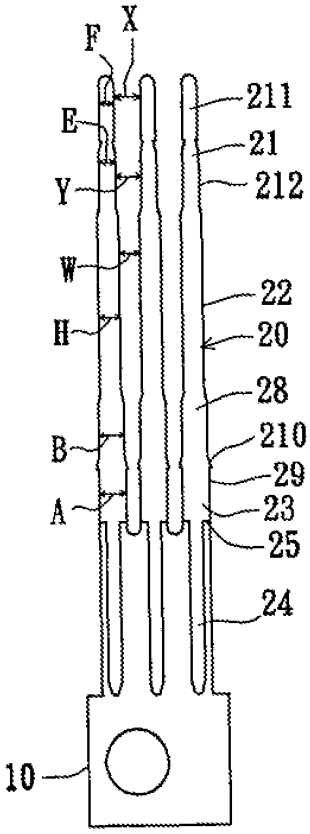


图 12

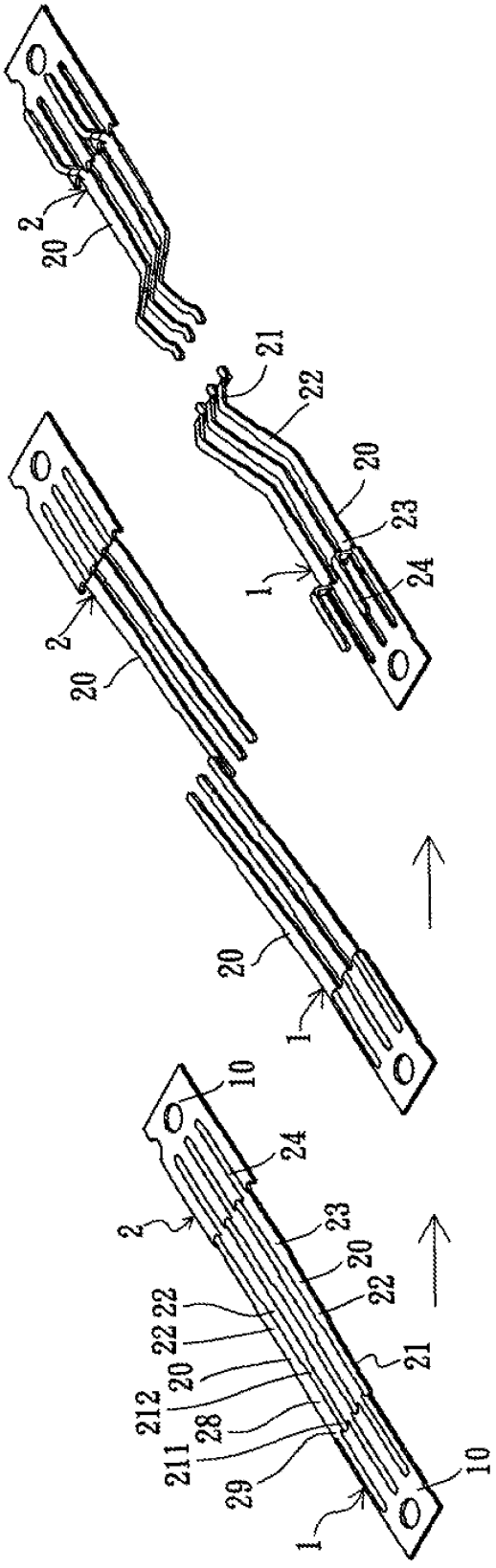


图 13

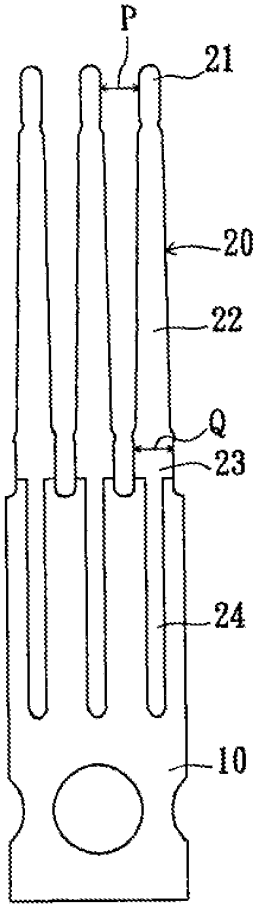


图 14

Samsung, EX1019, p. 614

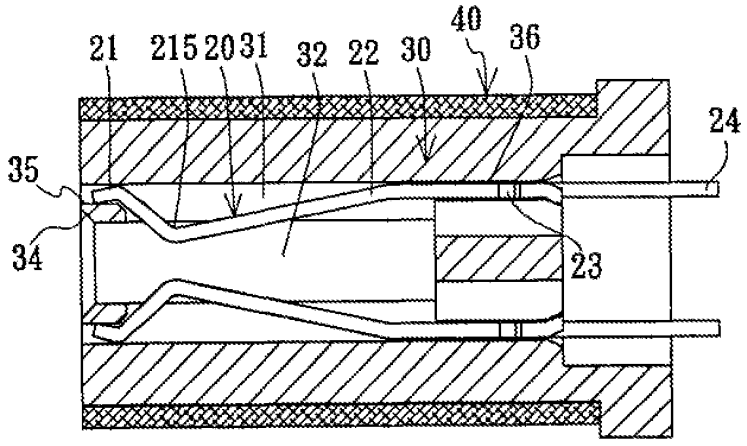


图 15

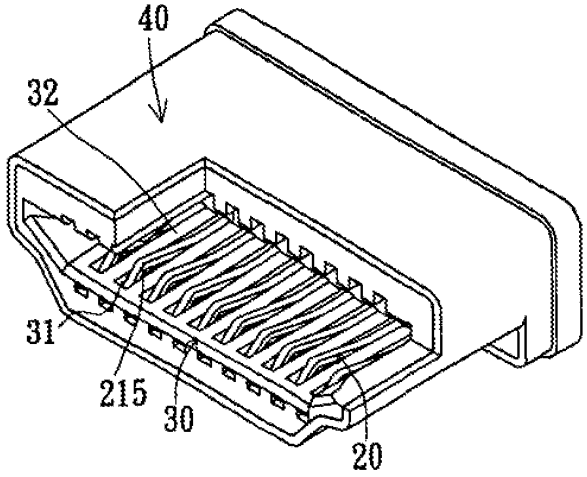


图 16

Samsung, EX1019, p. 615

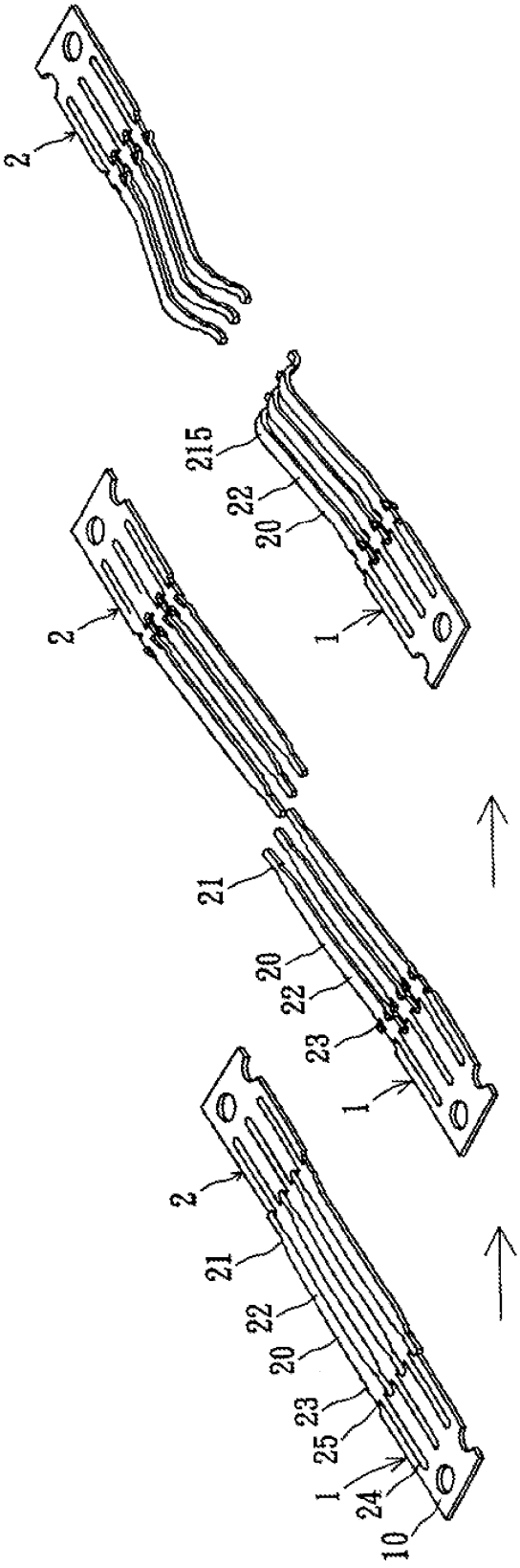


图 17

Samsung, EX1019, p. 616

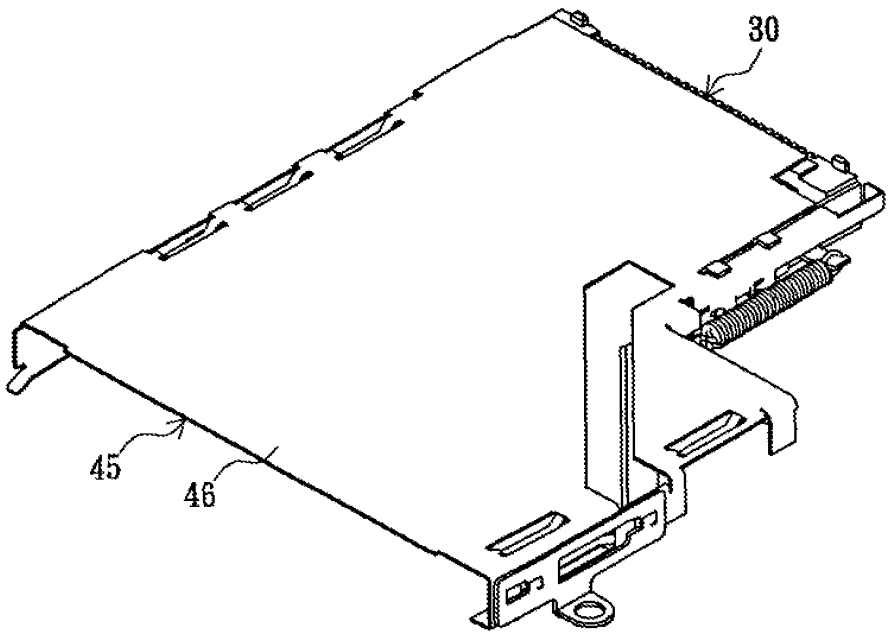


图 18

Samsung, EX1019, p. 617

图19

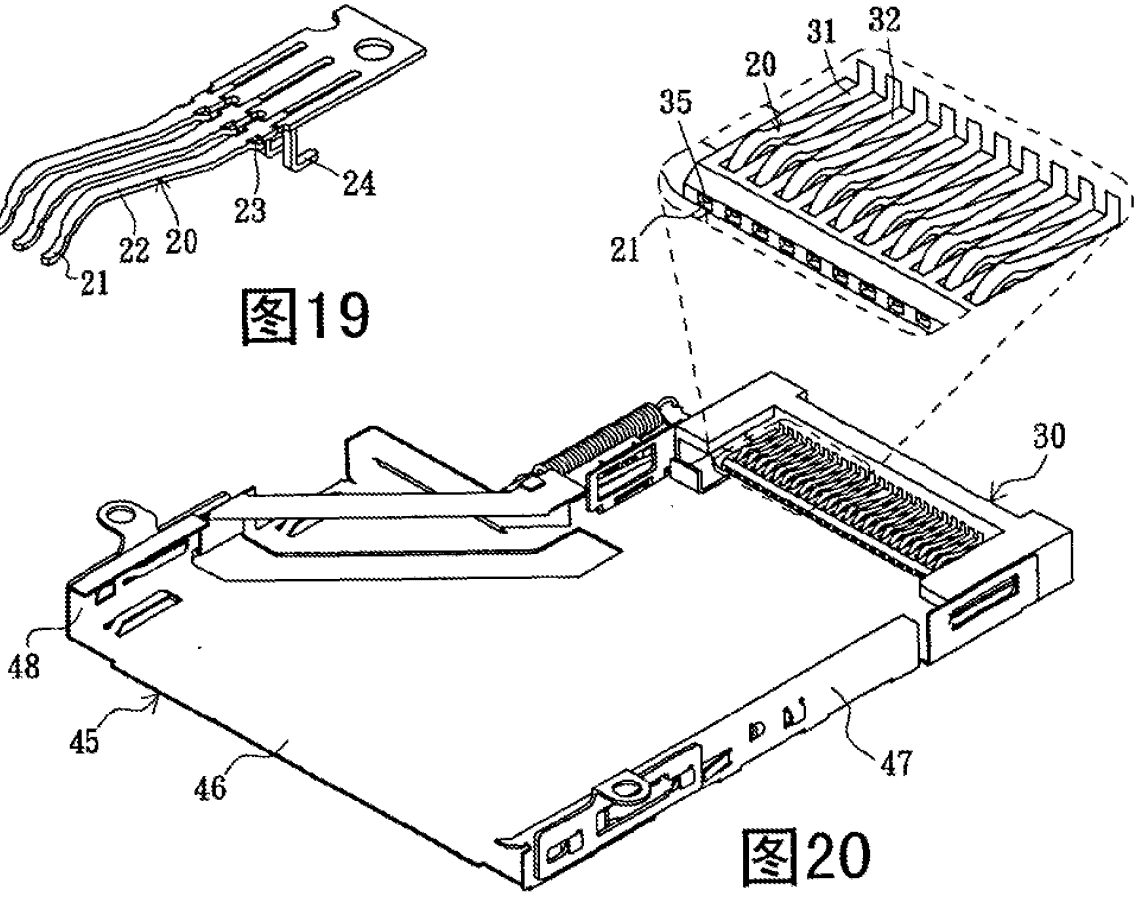


图20

Samsung, EX1019, p. 618

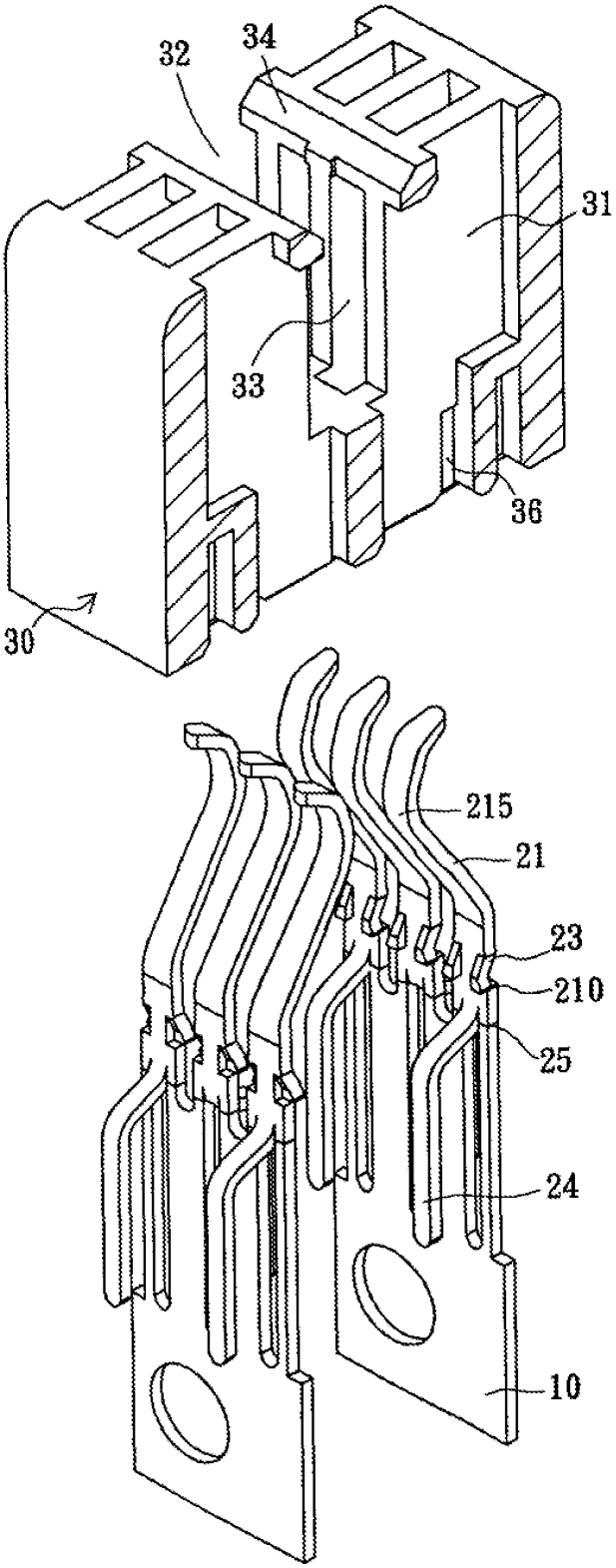


图 21

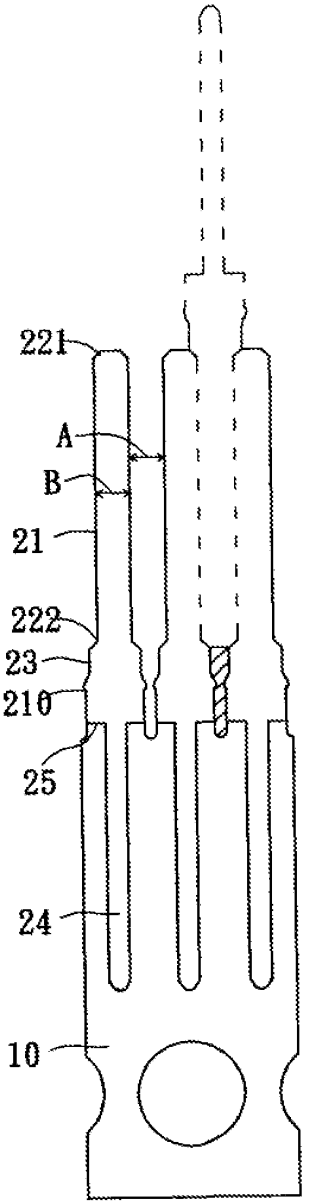


图 22

Samsung, EX1019, p. 619

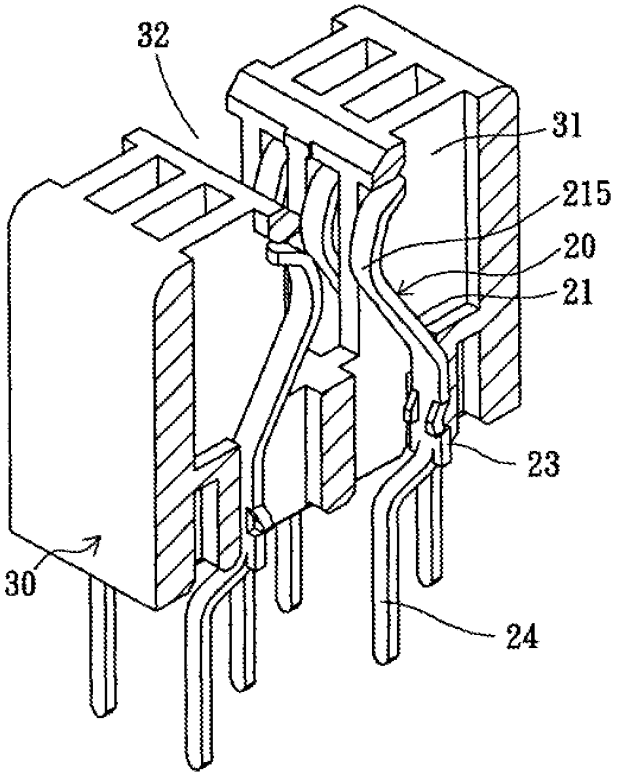


图 23

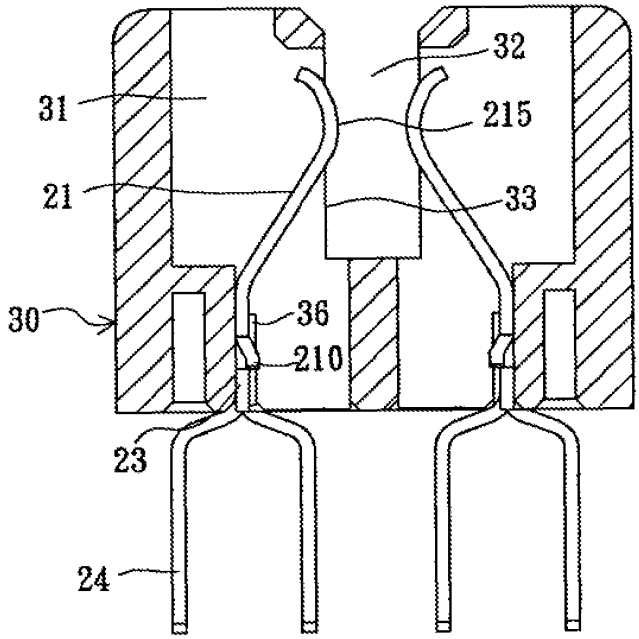


图 24

Samsung, EX1019, p. 620

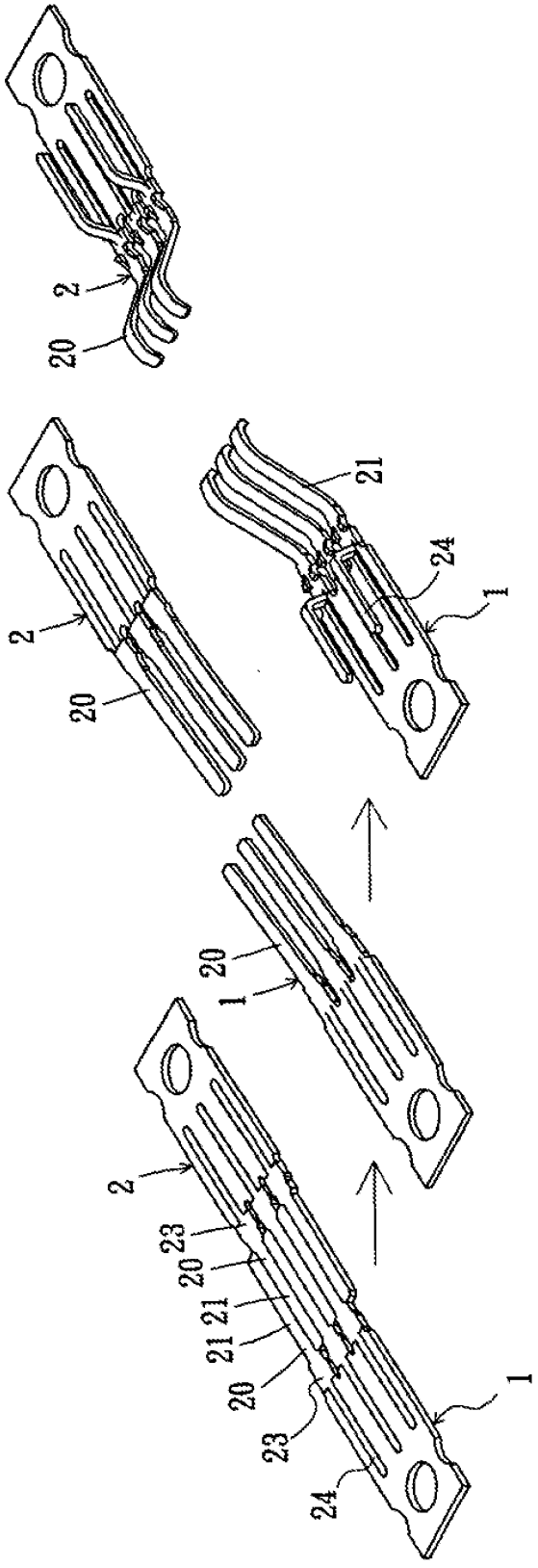


图 25

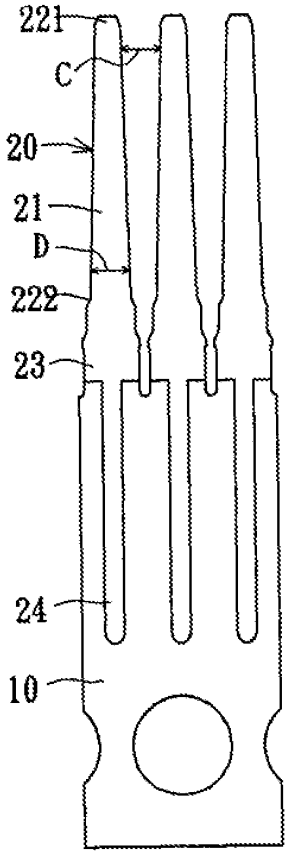


图 26

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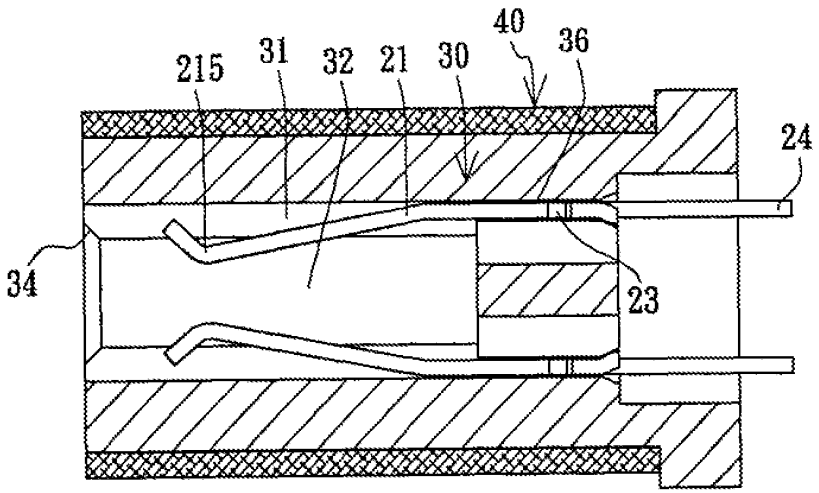


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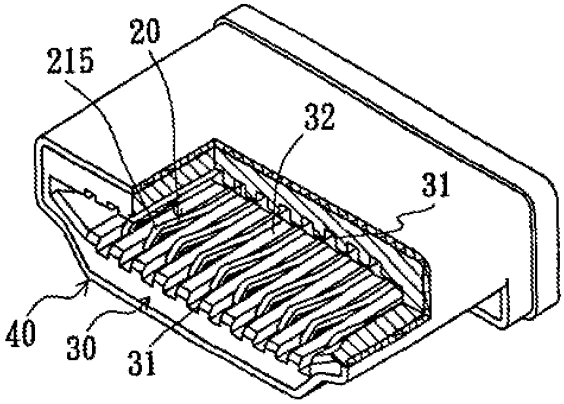


图 28

Samsung, EX1019, p. 622

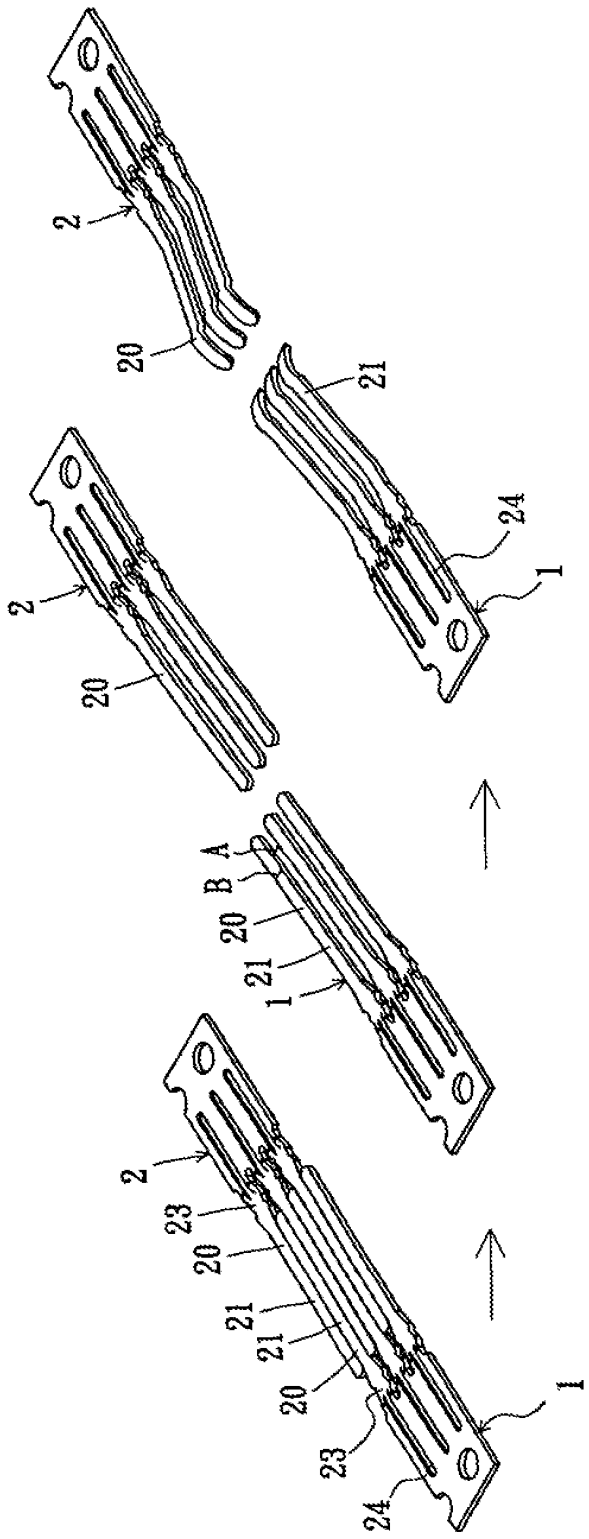


图 29

Samsung, EX1019, p. 623

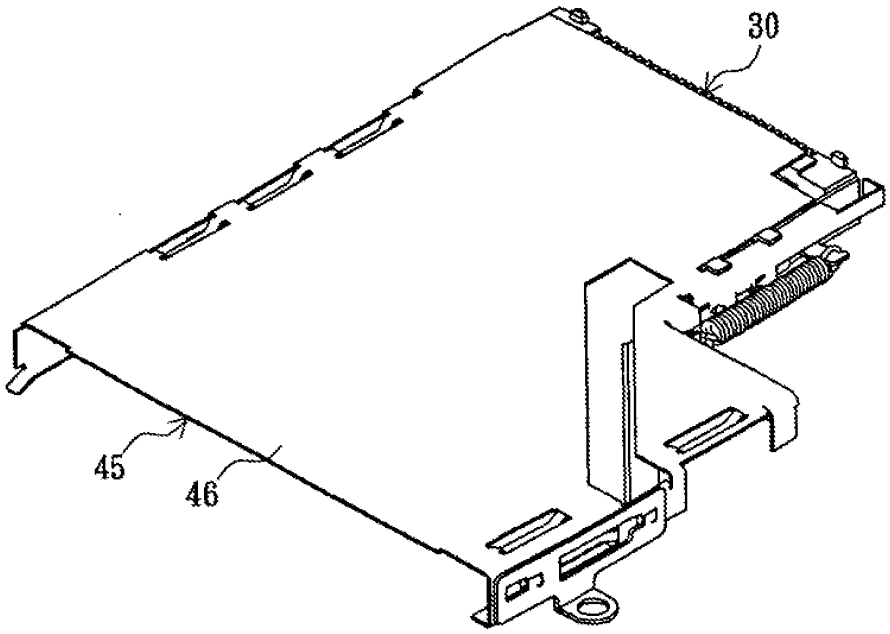


图 30

Samsung, EX1019, p. 624

图31

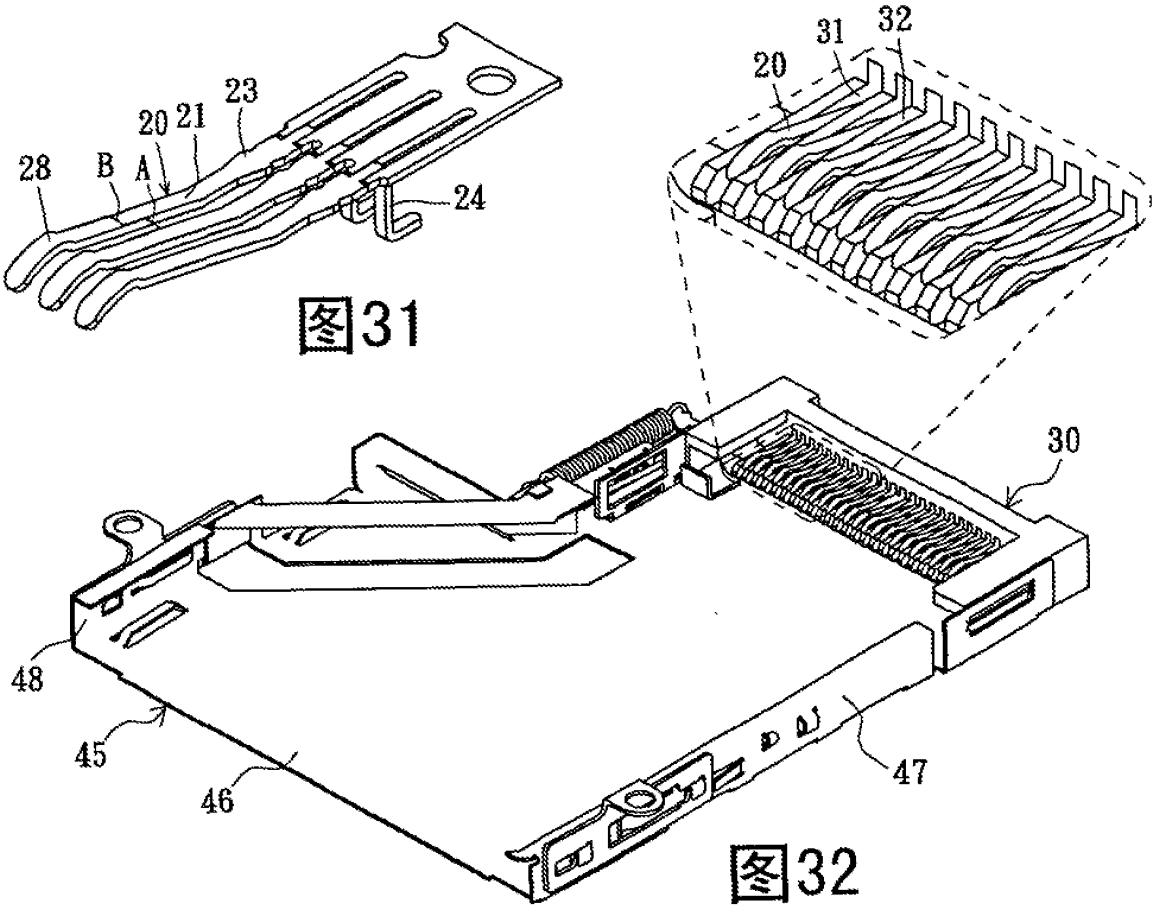


图32

Samsung, EX1019, p. 625

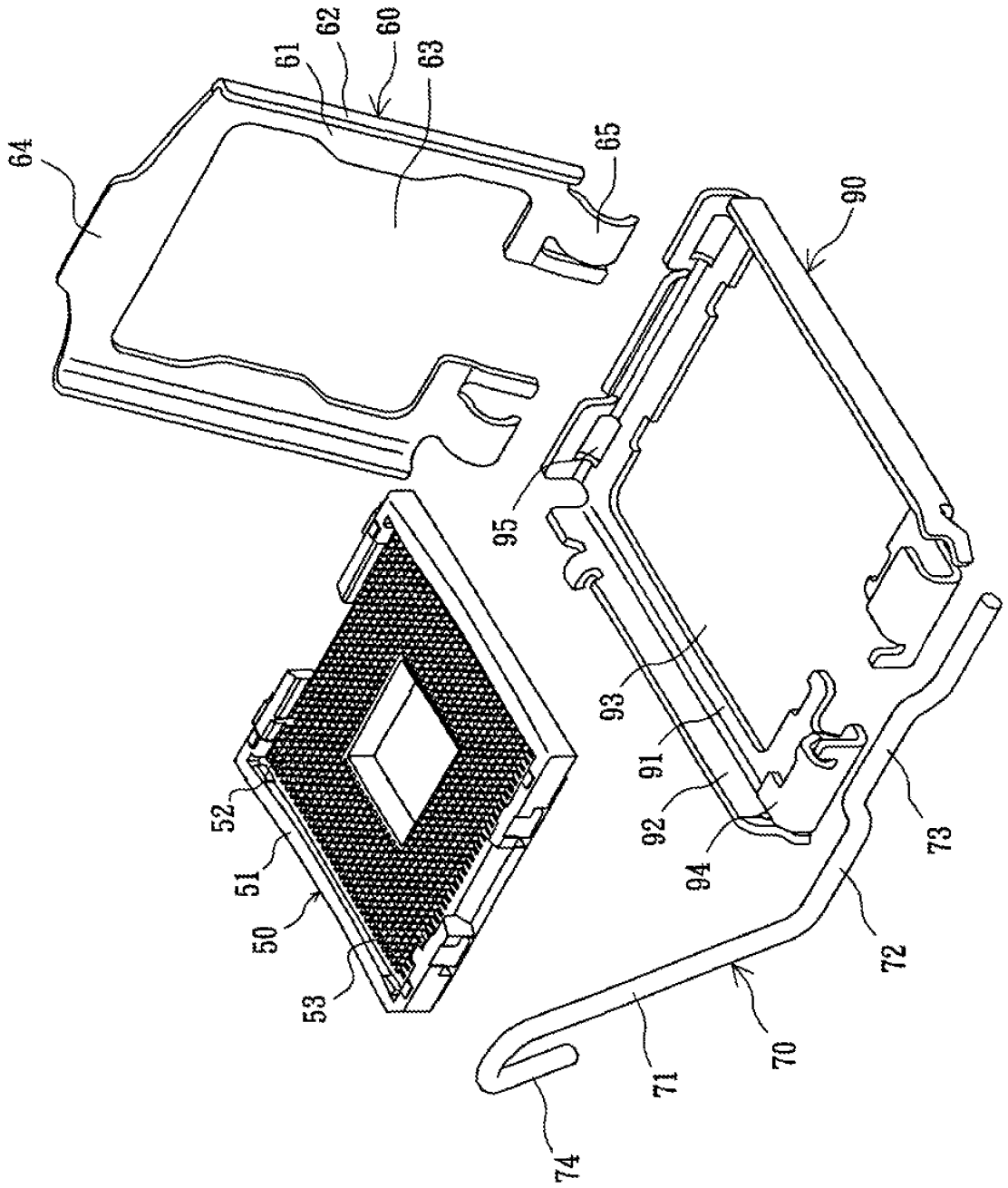


图 33

Samsung, EX1019, p. 626

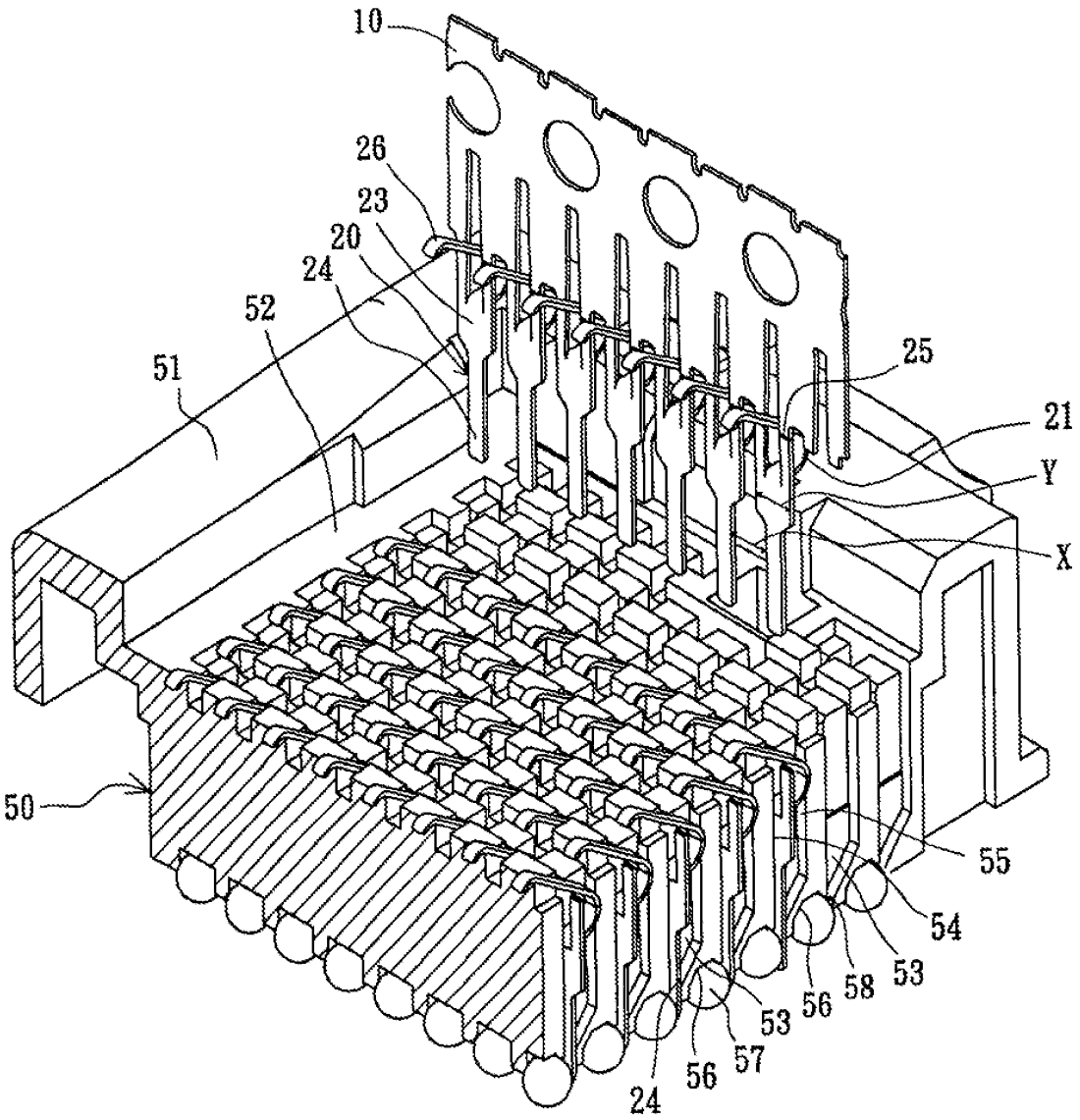


图 34

Samsung, EX1019, p. 627

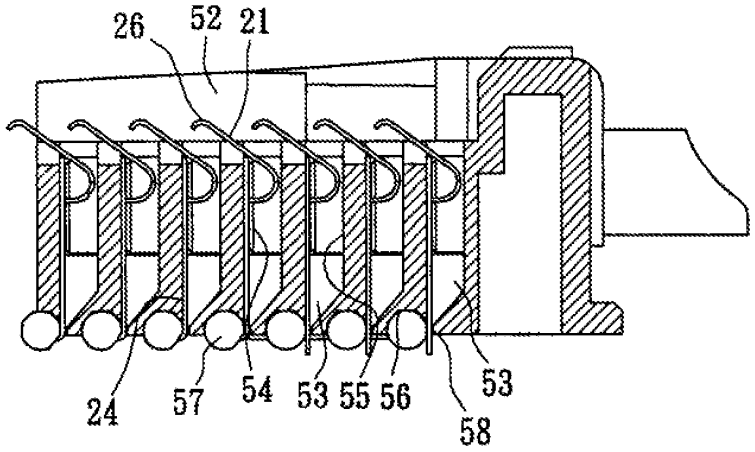


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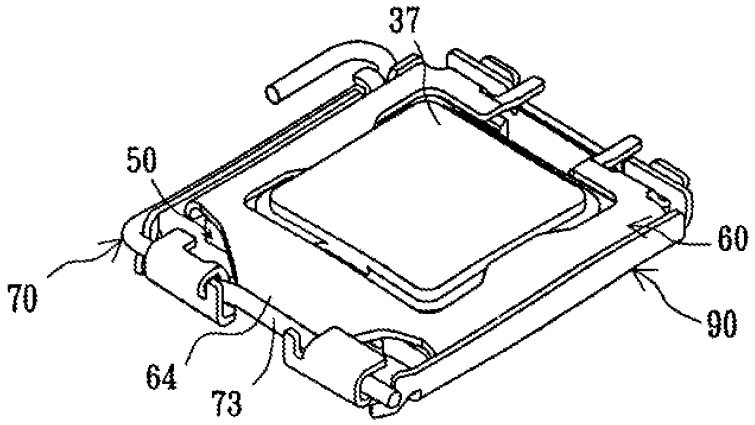


图 36

Samsung, EX1019, p. 628

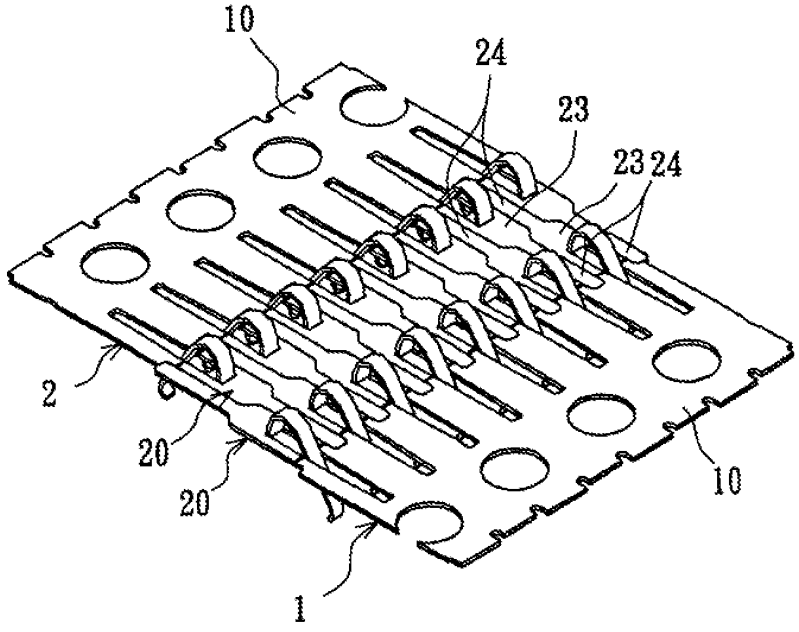


图 37

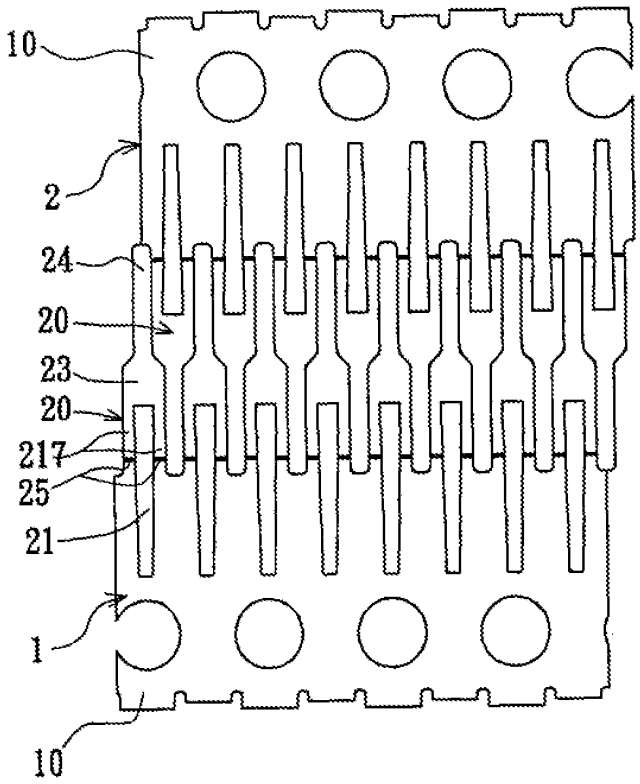


图 38

Samsung, EX1019, p. 629

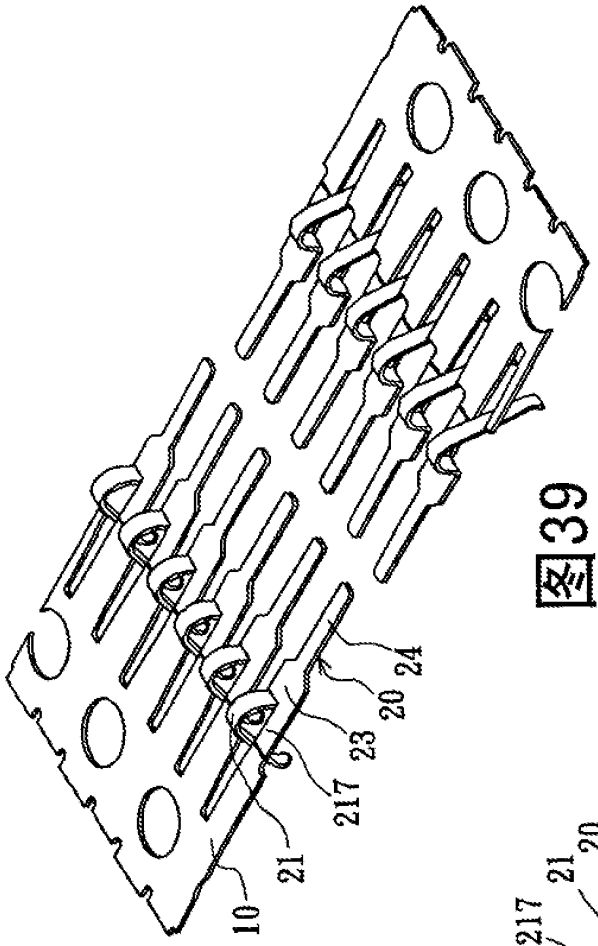


图39

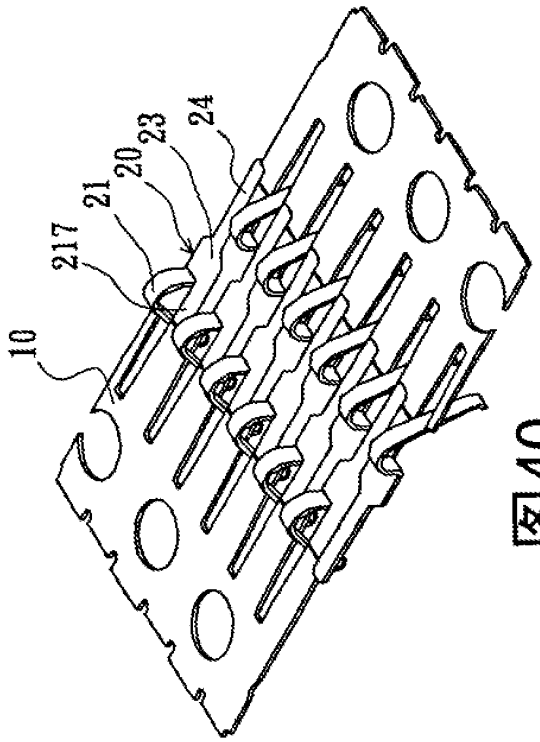


图40

Samsung, EX1019, p. 630

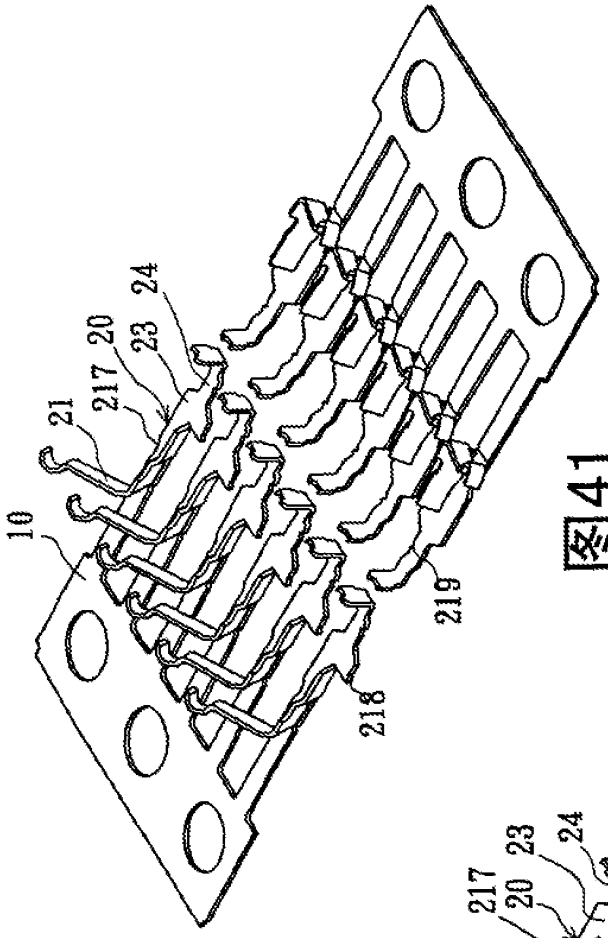


图41

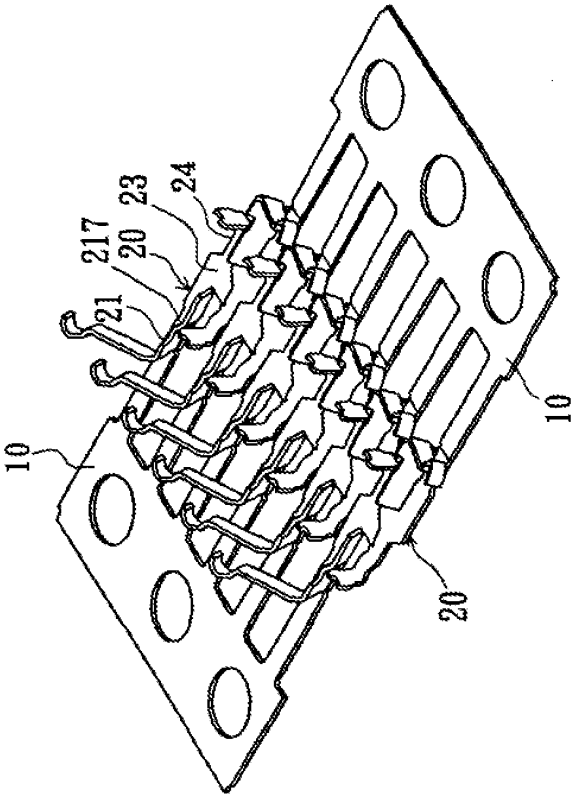


图42

Samsung, EX1019, p. 631

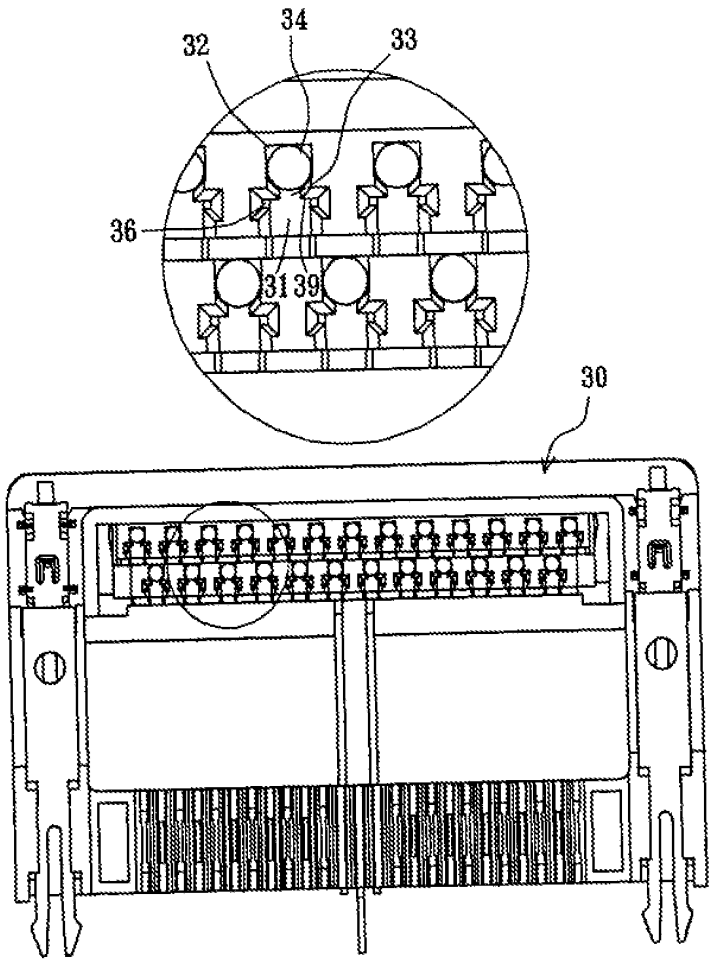


图 44

Samsung, EX1019, p. 632

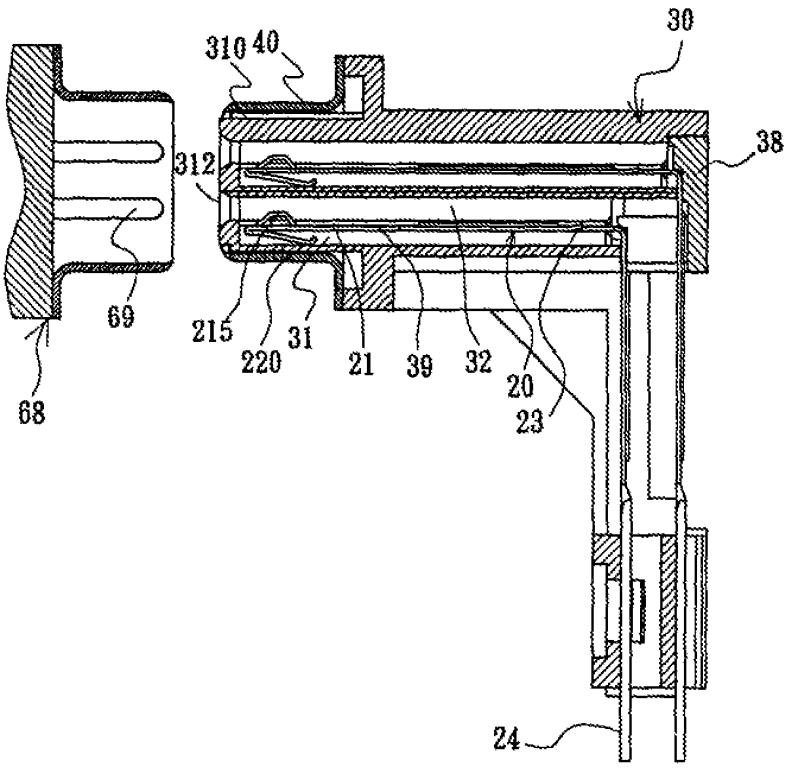


图 43

Samsung, EX1019, p. 633

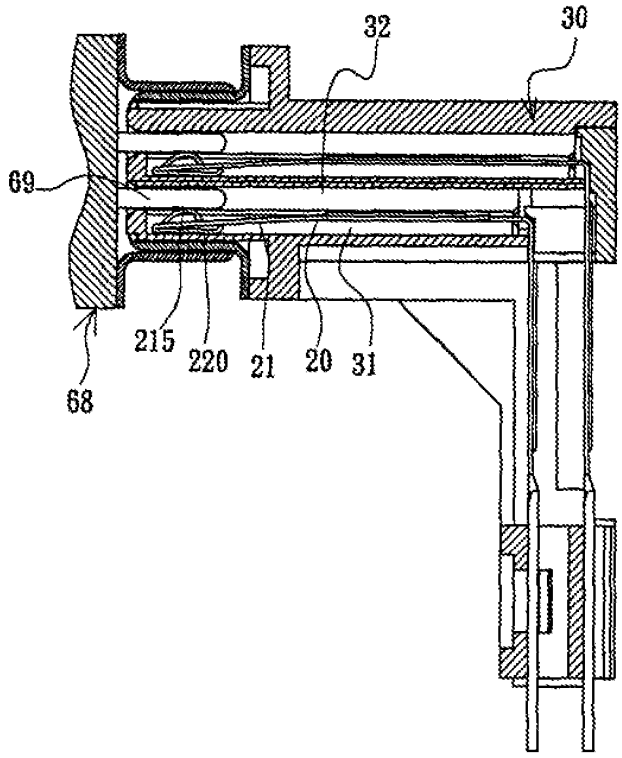


图 45

Samsung, EX1019, p. 634

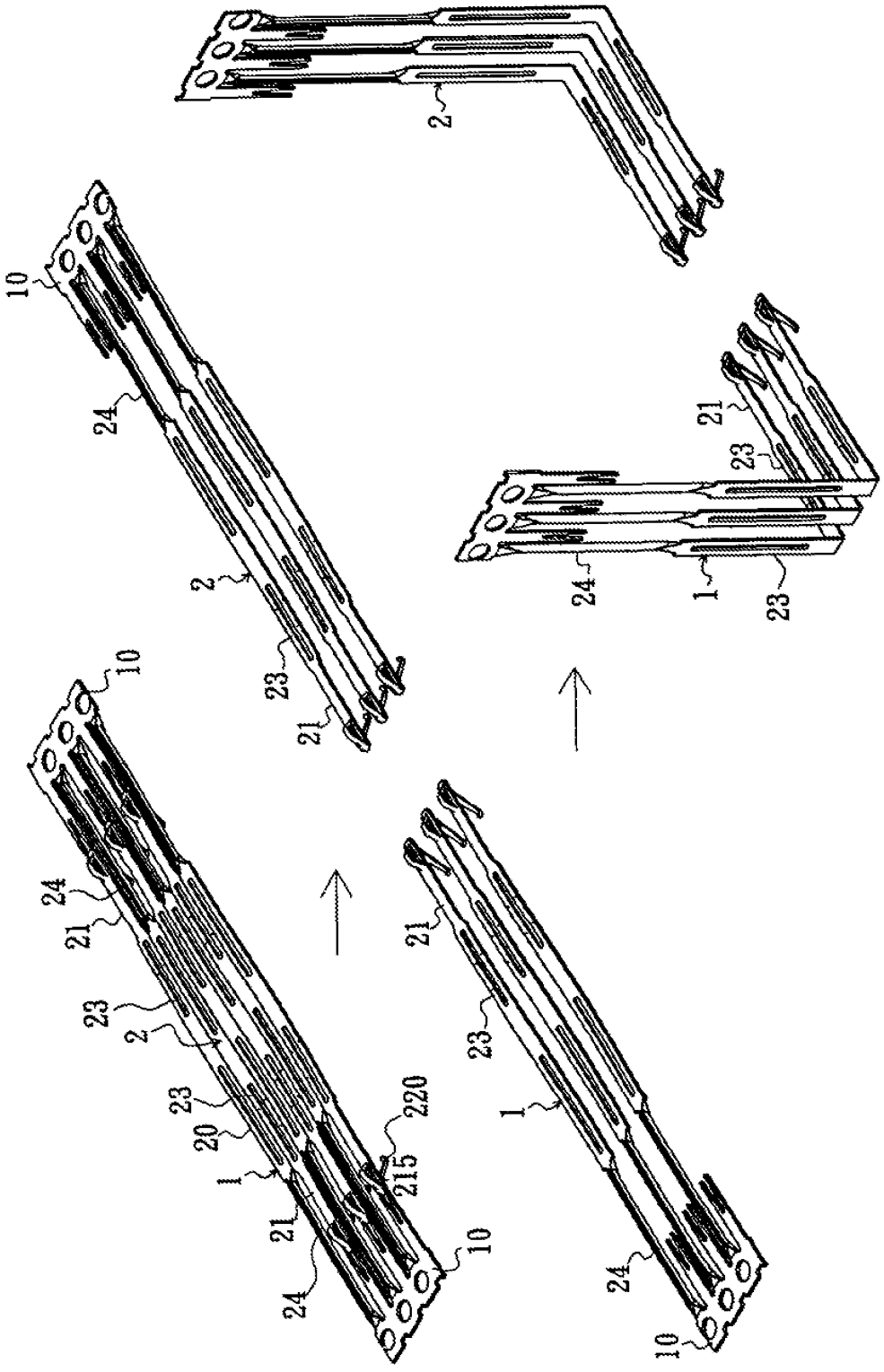


图 46

Samsung, EX1019, p. 635

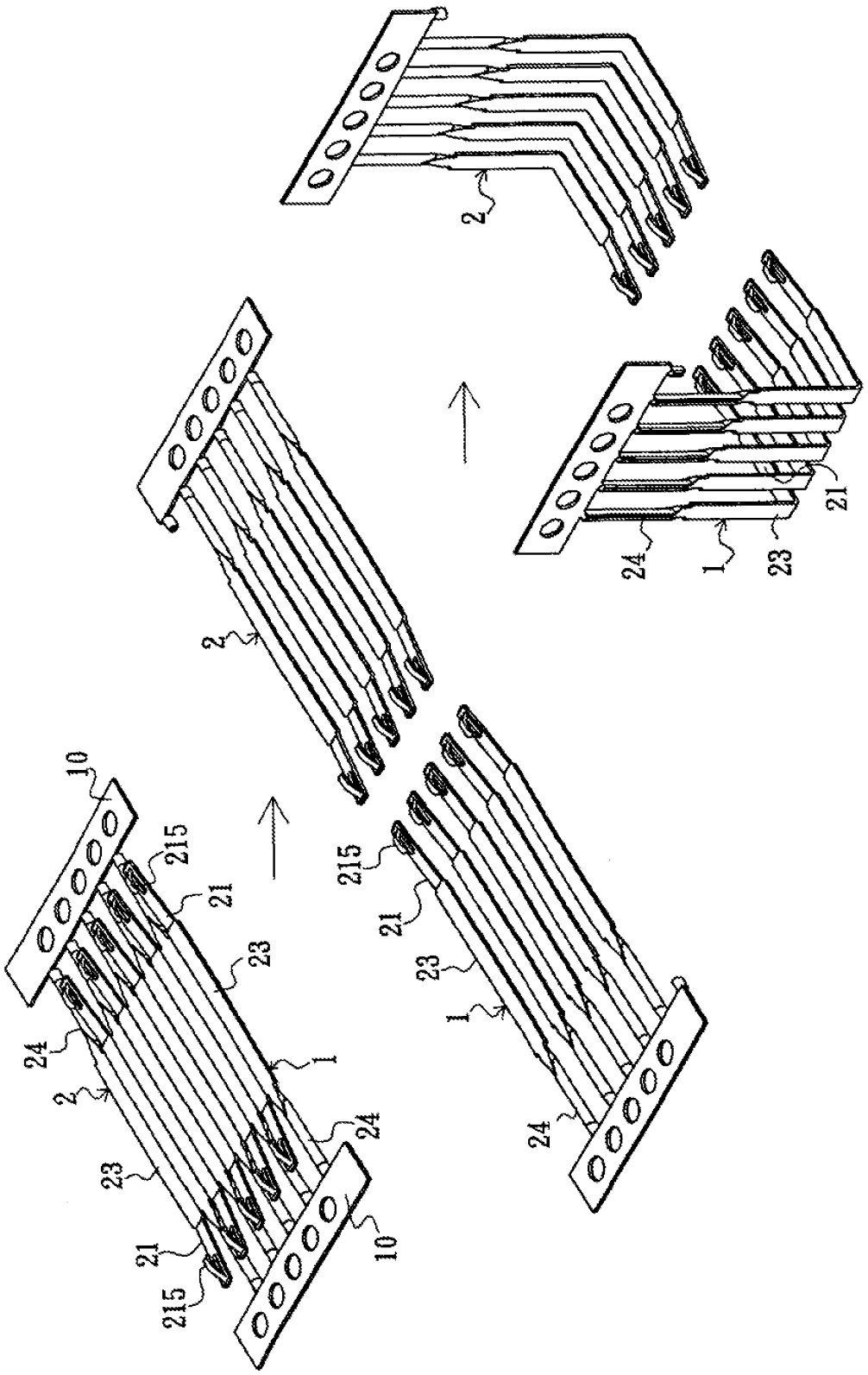


图 47

Samsung, EX1019, p. 636

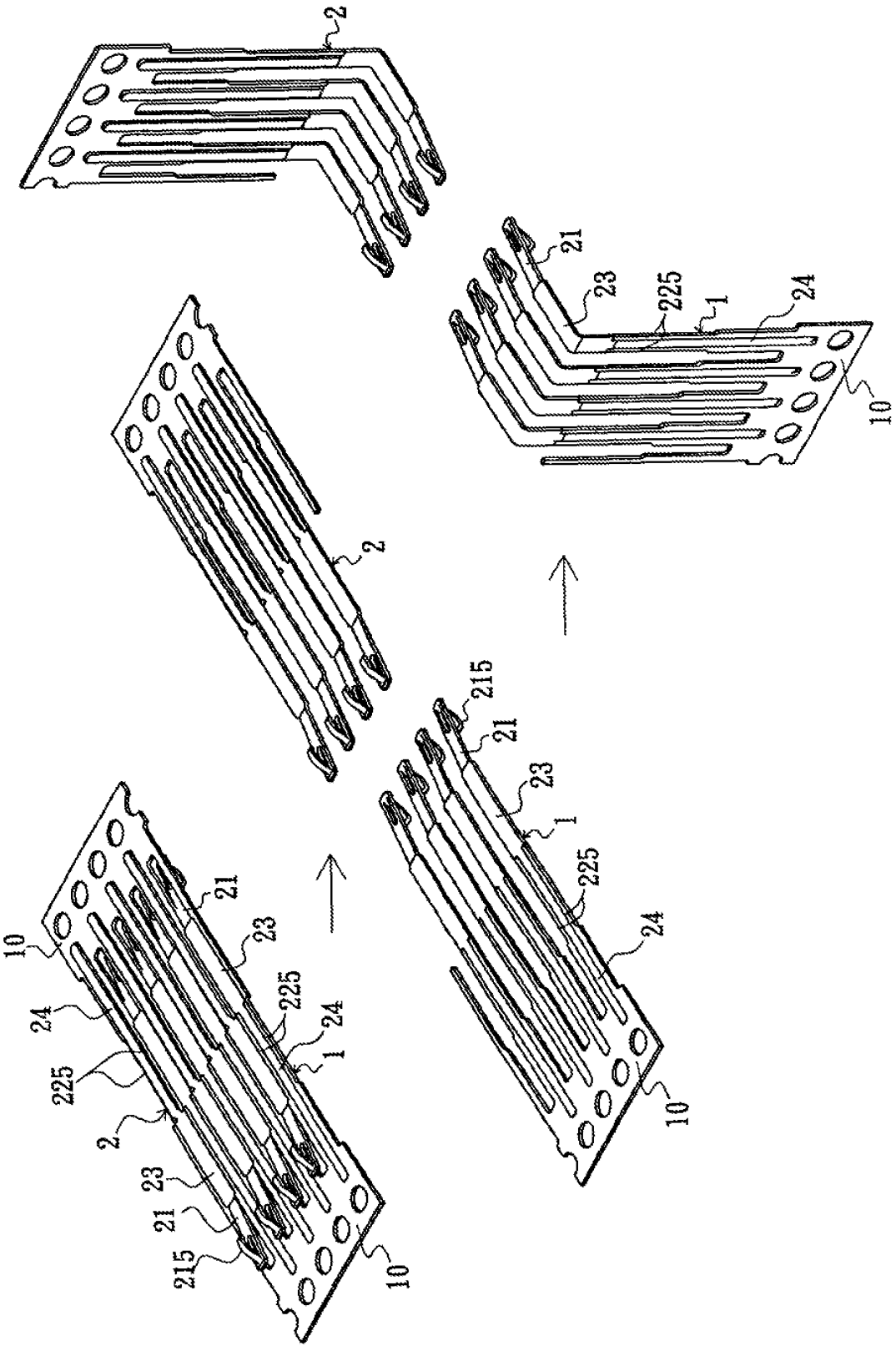


图 48

Samsung, EX1019, p. 637

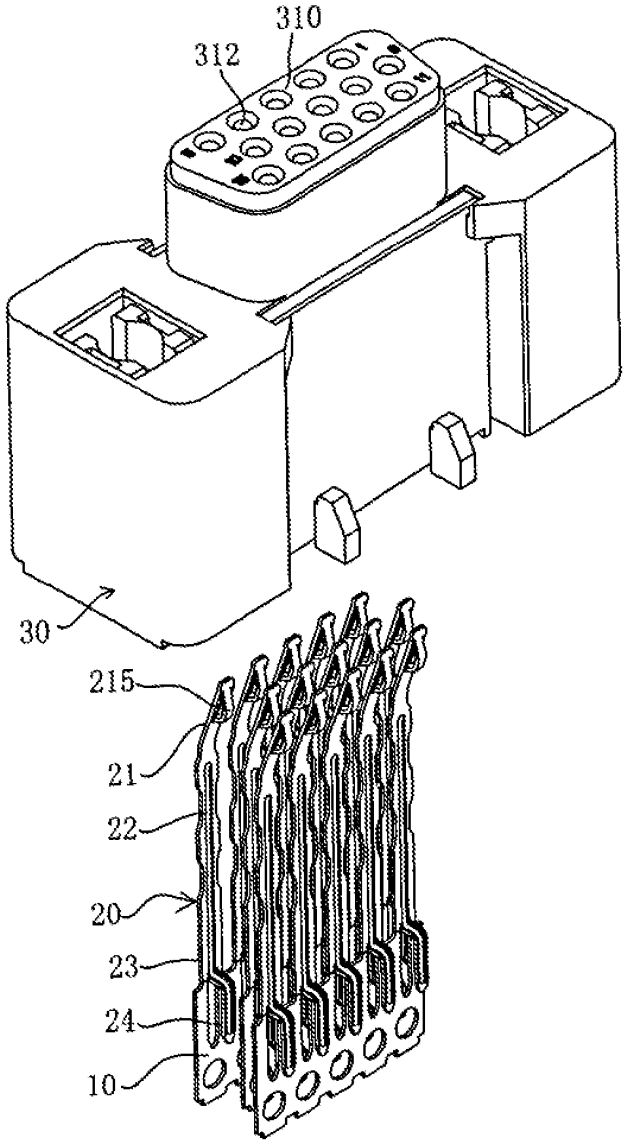


图 49

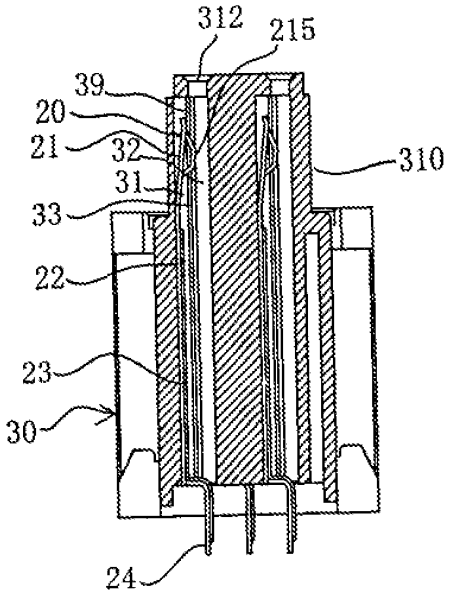


图 50

Samsung, EX1019, p. 638

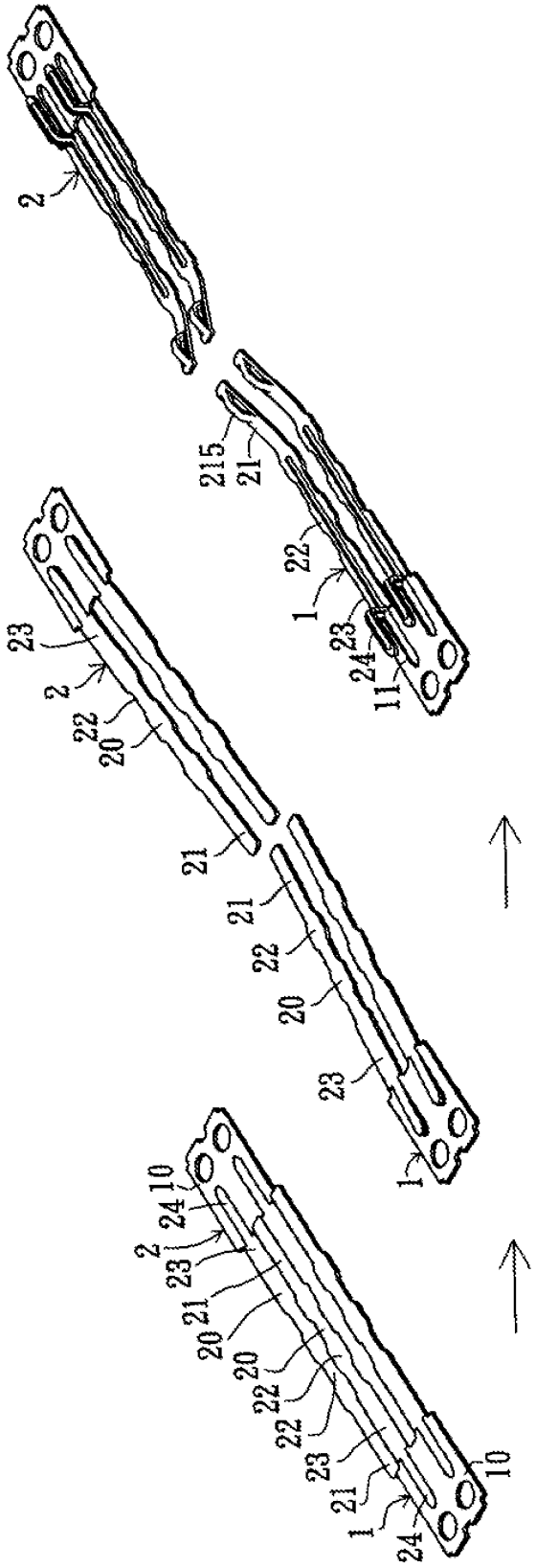


图 51

Samsung, EX1019, p. 639

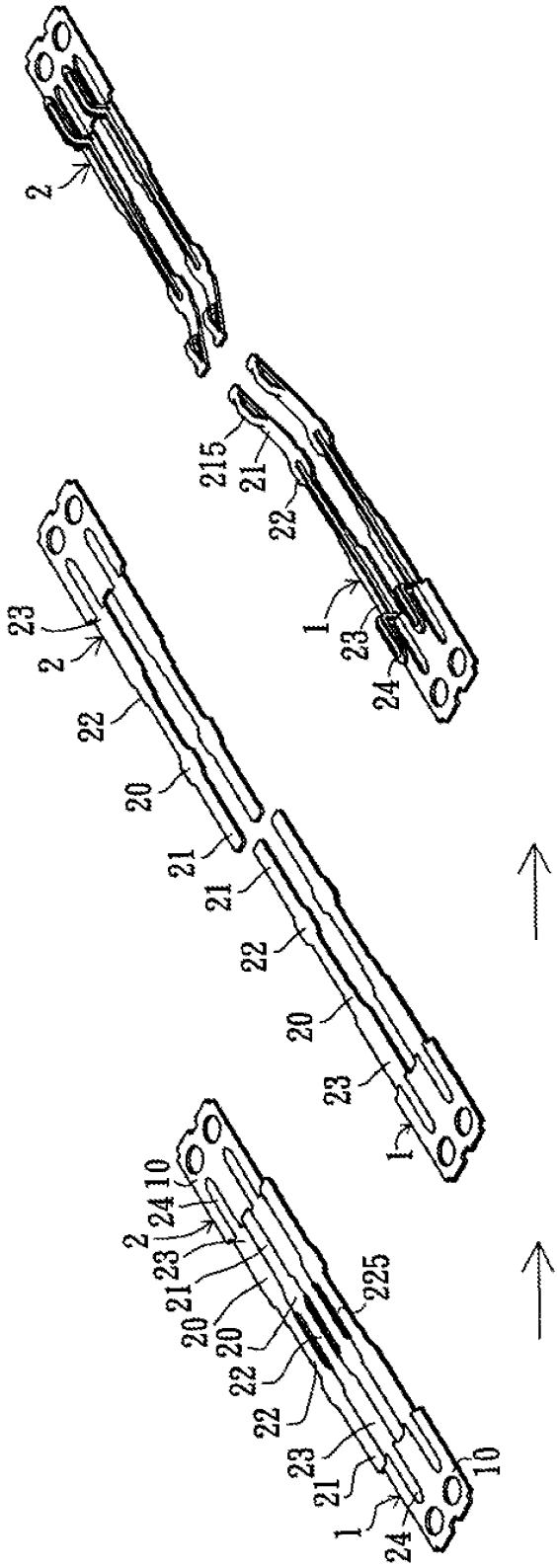


图 52

Samsung, EX1019, p. 640

Espacenet

CN201812961U Electric connection socket structure with two electrically-connected surfaces

Applicants: ZHOUXIAN CAI

Inventors: ZHOUXIAN CAI

Classifications:
IPC ***H01R12/70; H01R13/02; H01R13/516; H01R13/642; H01R27/02;***

Priorities: CN200910127879A 2009-04-10; CN200910142092A 2009-05-27; CN200920152428U 2009-06-05; CN201010004004A 2010-01-14; CN201020156670U 2010-03-26

Application: CN201812961U 2010-03-26

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Electric connection socket structure with two electrically-connected surfaces

Abstract

The utility model relates to an electric connection socket structure with two electrically-connected surfaces, comprising a plastic seat body, a connecting groove, a tongue piece, at least one row of first contact parts, and at least one row of second contact parts, wherein the connecting groove is positioned at one end of the plastic seat body and can be connected with at least one connector which is provided with at least one row of connecting points; the tongue piece is arranged at the front end of the plastic seat body and positioned in the connecting groove, so that the spaces of the connecting groove, which are positioned at two surfaces of the tongue piece, can lead the connector to be capable of being inserted into the connecting groove along the forward direction or the reverse direction and positioned at the connecting groove; the at least one row of first contact parts are arranged at intervals and positioned at one surface of the tongue piece, and each first contact part is electrically connected with a first pin and extends out of the plastic seat body; the at least one row of second contact parts are arranged at intervals and positioned at the other surface of the tongue piece, and each second contact part is electrically connected with a second pin and extends out of the plastic seat body; and when the connector is inserted into the connecting groove, at least one row of connecting points of the connector are electrically connected with the at least one row of first contact parts or the at least one row of second contact parts. The electric connection socket structure with the two electrically-connected surfaces can realize electric connection when one connector is inserted along the forward direction or the reverse direction.

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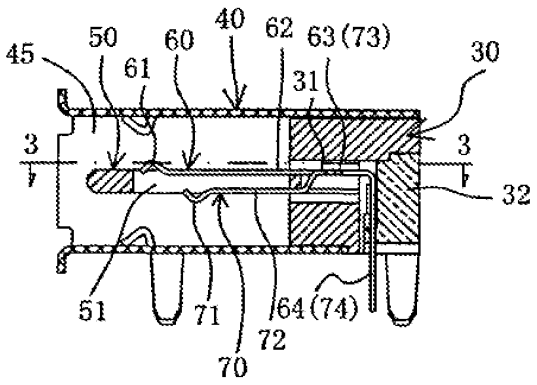
权利要求书 4 页 说明书 17 页 附图 30 页

(54)实用新型名称

双面电连接的电连接插座构造

(57)摘要

一种双面电连接的电连接插座构造，包括：一塑胶座体；一连接槽，其位于该塑胶座体一端，其可连接至少一接头，该接头设有至少一排接点；一舌片，其设于该塑胶座体前端并位于该连接槽内，使该连接槽于舌片两面的空间可令该接头可正、反向插入定位于该连接槽；至少一排第一接触部，其间隔排列位于该舌片一面，每一第一接触部电连接一第一接脚伸出该塑胶座体外；及至少一排第二接触部，其间隔排列位于该舌片另一面，每一第二接触部电连接一第二接脚伸出该塑胶座体外；该接头插入该连接槽时，该接头的至少一排接点与该至少一排第一接触部或该至少一排第二接触部电连接。本实用新型的双面电连接的电连接插座构造，当一接头正反双向插入皆可电连接。



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1. 一种双面电连接的电连接插座构造，其特征在于：包括有：

一塑胶座体；

一连接槽，所述连接槽位于该塑胶座体一端，所述连接槽能够连接一接头，该接头设有至少一排接点；

一舌片，所述舌片设于该塑胶座体一端并位于该连接槽内，使该连接槽于舌片两面的空间能够令该接头可正、反向插入定位于该连接槽；

至少一排第一接触部，间隔排列位于该舌片一面，每一第一接触部电连接一第一接脚伸出该塑胶座体外；及

至少一排第二接触部，间隔排列位于该舌片另一面，每一第二接触部电连接一第二接脚伸出该塑胶座体外；

该接头插入该连接槽时，该接头的至少一排接点与该至少一排第一接触部或该至少一排第二接触部电连接。

2. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该至少一排第一接触部和第一接脚形成在至少一排第一端子上，该第一端子一体设有该第一接触部、一第一延伸部、一第一固定部及该第一接脚，该第一固定部一端连接该第一接脚，该第一延伸部连接于该第一固定部另一端且持续向连接槽之插入口方向延伸；该至少一排第二接触部和第二接脚形成在至少一排第二端子上，该第二端子一体设有该第二接触部、一第二延伸部、一第二固定部及该第二接脚，该第二固定部一端连接该第二接脚．该第二延伸部连接于该第二固定部另一端且持续向连接槽之插入口方向延伸。

3. 如权利要求 2 所述的双面电连接的电连接插座构造，其特征在于：该一排第一端子的第一接触部和一排第二端子的第二接触部分别凸出该舌片一面。

4. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该连接槽于舌片两面的空间形成相容的轮廓，该接头仅有一面设有该至少一排接点，该接头的至少一排接点仅与该舌片其中一面的至少一排接触部电连接。

5. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：更设有一金属外壳包覆该塑胶座体，该舌片与该塑胶座体一体成型。

6. 如权利要求 3 所述的双面电连接的电连接插座构造，其特征在于：该舌片上设有多个间隔排列的透空槽，该第一端子的第一接触部和第二端子的第二接触部皆对应该透空槽弹动。

7. 如权利要求 6 所述的双面电连接的电连接插座构造，其特征在于：对应同一透空槽的第一端子的第一接触部与第二端子的第二接触部为一前一后相互对齐。

8. 如权利要求 6 所述的双面电连接的电连接插座构造，其特征在于：该第一端子的第一接触部和第二端子的第二接触部呈左右并列。

9. 如权利要求 3 所述的双面电连接的电连接插座构造，其特征在于：该第一端子的第一接触部是由第一延伸部板面刺破凸出，该第一接触部一端连接于第一延伸部且由前面后渐凸起延伸至另一端并成开放；该第二端子的第二接触部是由第二延伸部板面刺破凸出，该第二接触部一端连接于第二延伸部且由前面后渐凸起延伸至另一端并成开放。

10. 如权利要求 9 所述的双面电连接的电连接插座构造，其特征在于：该一排第一端子和一排第二端子为相同连接介面且序号相互为反向排列。

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11. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该舌片为一电路板，该舌片上面设有多条第一电路，该第一电路于该舌片前段设有该第一接触部且于该舌片后段设有第一接点，该第一接点与该第一接脚电连接；该舌片下面设有多条第二电路，该第二电路于该舌片前段设有该第二接触部且于该舌片后段设有第二接点，该第二接点与该第二接脚电连接。

12. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该接头设有一塑胶座体及一金属外壳，该金属外壳包覆该塑胶座体，该金属外壳和该塑胶座体间形成一空间，该接头插入该连接槽时该空间为该舌片所套入。

13. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该接头呈板片体且不具有金属外壳形成套接该舌片的空间，该接头插入该连接槽时能够接合于该舌片的上方或下方，即该舌片上、下方能够同时插接一该接头。

14. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该至少一排第一接触部和至少一排第二接触部为相同连接介面且序号相互为反向排列，该接头的接点朝上或朝下正反双向均能够插入电连接。

15. 如权利要求 14 所述的双面电连接的电连接插座构造，其特征在于：其为一 USB 插座，其中该一排第一、二接触部各自有四个。

16. 如权利要求 14 所述的双面电连接的电连接插座构造，其特征在于：其为一 mini USB 插座，其中该一排第一、二接触部各自有五个。

17. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该至少一排第一接触部和至少一排第二接触部为不同的连接介面，能够分别与该接头及另一不同连接介面的接头电连接。

18. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该舌片设于该连接槽内的正中间，使该连接槽于舌片的上下左右空间形成对称的轮廓。

19. 如权利要求 5 所述的双面电连接的电连接插座构造，其特征在于：该金属外壳至少一侧向内凸出至少一可侧向弹动的弹片，当该接头插入该连接槽时，该至少一弹片可抵靠该接头或舌片，防止该接头转折。

20. 如权利要求 19 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片为一中间弹片，该中间弹片位于该连接槽一侧的中间高度，该接头不具有金属外壳，该接头插入该连接槽时能够接合于该舌片的上方或下方，该中间弹片抵靠该接头设有接点之一面。

21. 如权利要求 19 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片为二外弹片，该二外弹片位于该连接槽一侧的舌片上、下方位置，该接头设有一塑胶座体及一金属外壳，该金属外壳包覆该塑胶座体，该塑胶座体间形成一空间，该接头插入该连接槽时该空间为该舌片所套入，该金属外壳一侧之一弹片为该接头顶开，另一弹片抵靠该接头一面。

22. 如权利要求 21 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片更包括有二内弹片，该二内弹片设于该二外弹片内侧，该二内弹片分别抵接于该舌片一侧的上、下面。

23. 如权利要求 21 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹

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片更包括有一中间弹片，该中间弹片设于该二外弹片内侧且位于该连接槽一侧的中间高度，当该接头不具有金属外壳，该接头插入该连接 槽时可接合于该舌片的上方或下方，该中间弹片抵靠该接头设有接点之一面。

24. 如权利要求 19 所述的双面电连接的电连接插座构造，其特征在于：该弹片一端连接于该金属外壳一侧接近前端并向内呈弧状延伸，该弹片设有一凸点，当该凸点受挤压即使弹片向外侧弹动。

25. 如权利要求 19 所述的双面电连接的电连接插座构造，其特征在于：该弹片一端连接于该金属外壳一侧板面并向外呈弧状延伸，该弹片设有一凸点，当该凸点受挤压即使弹片向外侧弹动。

26. 如权利要求 3 所述的双面电连接的电连接插座构造，其特征在于：该第一接触部的前端设有第一导入片，该第二接触部的前端设有第二导入片，该第一接触部和第二接触部呈上下对齐，该第一导入片和第二导入片呈一左一右错开。

27. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该塑胶座体一端更叠堆设有至少另一连接槽，该另一连接槽内设有至少一排端子借以连接一接头。

28. 如权利要求 14 所述的双面电连接的电连接插座构造，其特征在于：该连接槽的上、下端较中段为窄，使其轮廓的四角形成斜边。

29. 如权利要求 28 所述的双面电连接的电连接插座构造，其特征在于：该连接槽的前端四斜边各设有一外张的导正斜板，当接头插入连接槽时碰到该导正斜板时会向连接槽中心导正。

30. 如权利要求 28 所述的双面电连接的电连接插座构造，其特征在于：其为一 micro USB2.0 插座，该至少一排第一接触部和至少一排第二接触部皆为一排 5 个不弹动的接点。

31. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：更设有一第二舌片，其位于该连接槽内并与该舌片呈同一水平并列；至少一排第三接触部，其间隔排列位于该第二舌片一面，每一第三接触部电连接一接脚伸出该塑胶座体外；及至少一排第四接触部，其间隔排列位于该第二舌片另一面，每一第四接触部电连接一接脚伸出该塑胶座体外；其中该至少一排第一接触部和至少一排第三接触部为相同连接介面且序号相互为反向排列，该至少一排第二接触部和至少一排第四接触部为相同连接介面且序号相互为反向排列。

32. 如权利要求 31 所述的双面电连接的电连接插座构造，其特征在于：其为一 micro USB3.0 插座，该至少一排第一接触部、至少一排第二接触部、至少一排第三接触部及至少一排第四接触部皆为一排 5 个不弹动的接点。

33. 如权利要求 14 所述的双面电连接的电连接插座构造，其特征在于：该连接槽内更设有一第二舌片与该舌片呈同一水平并列，且更设有至少一排第三接触部，其间隔排列位于该第二舌片一面，每一第三接触部电连接一接脚伸出该塑胶座体外。

34. 如权利要求 3 所述的双面电连接的电连接插座构造，其特征在于：更设有第二排第一端子及第二排第二端子，该第二排第一端子的第一接触部是贴合于该舌片一面，该第二排第一端子的第一接触部位于该第一排第一端子的第一接触前方且两者同面；该第二排第二端子的第二接触部是贴合于该舌片另一面，该第二排第二端子的第二接触部位

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于该第一排第二端子的第二接触前方且两者同面。

35. 如权利要求 2 所述的双面电连接的电连接插座构造，其特征在于：该第一、二延伸部为不弹动。

36. 如权利要求 2 或 3 或 35 所述的双面电连接的电连接插座构造，其特征在于：该第一、二延伸部呈线性延伸。

37. 如权利要求 36 所述的双面电连接的电连接插座构造，其特征在于：该第一、二延伸部呈水平线性延伸。

38. 如权利要求 3 所述的双面电连接的电连接插座构造，其特征在于：该第一、二延伸部皆为可遂行上下弹动位移的单一弹动力臂。

39. 如权利要求 1 所述的双面电连接的电连接插座构造，其特征在于：该第一接脚不同于该第二接脚。

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双面电连接的电连接插座构造

【技术领域】

[0001] 本实用新型是有关于一种电连接器，特别是关于一种双面电连接的电连接插座构造。

【背景技术】

[0002] 现今电脑设备最普及的讯号传输规格莫过于通用串行总线（UniversalSerial Bus，简称 USB），以此规格制作的连接器插座及传输线可使外接于电脑的周边设备，如滑鼠、键盘等，即时为电脑所测得并立即使用。

[0003] 由于 USB 接头仅一面设有一排接点，故目前 USB 插座是于其内的舌片一面设有一排接点，在使用上，USB 接头需插入方向正确才能使两者的接点对上电连接。

[0004] 为了确保 USB 接头插入时能电连接，两者在对接上具有防呆设计，即当 USB 接头反向插入时则无法插入，使用者即会再换另一个方向插入，方向正确了才能插入，如此即可确保插入后具有电连接。

[0005] 使用者通常是随机插入，故插不进去的机率是 1/2，故常常是插两次，造成使用上的不便。

[0006] 再者，接头的种类日益增加，亦有相同外形然而连接介面不同者，若两种相同外形然而连接介面不同的接头若能皆以同一插座来电连接，则能达到使用上的多元性。

【实用新型内容】

[0007] 本实用新型的主要目的在于提供一种双面电连接的电连接插座构造，其是当一接头正反双向插入皆可电连接，达到使用上的简便。

[0008] 本实用新型的另一主要目的在于提供一种双面电连接的电连接插座构造，其是可作为双槽使用而使能同时电连接两个接头。

[0009] 本实用新型的再一主要目的在于提供一种双面电连接的电连接插座构 造，其可供二种具有相同外型然而连接介面不同的接头作电连接，达到使用上的多元性。

[0010] 本实用新型的次要目的在于提供一种双面电连接的电连接插座构造，其中舌片两面的端子的导入片上下错开，如此舌片两面的端子在弹动时可相互错开，达到具有较大弹动空间，且端子的接触部具有较大接触面积。

[0011] 本实用新型的另一次要目的在于提供一种双面电连接的电连接插座构造，其金属外壳至少一侧向内凸出至少一可侧向弹动的弹片，当一接头插入连接槽时，该至少一弹片可抵靠该接头或舌片，防止该接头转折折断舌片。

[0012] 为达上述目的，本实用新型双面电连接的电连接插座构造，其包括有：一塑胶座体；一连接槽，其位于该塑胶座体一端，其可连接一接头，该接头设有至少一排接点；一舌片，其设于该塑胶座体前端并位于该连接槽内，使该连接槽于舌片两面的空间可令该接头正、反均可插入定位于该连接槽；至少一排第一接触部，其间隔排列位于该舌片一面，每一第一接触部电连接一第一接脚伸出该塑胶座体外；及至少一排第二接触

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部，其间隔排列位于该舌片另一面，每一第二接触部电连接一第二接脚伸出该塑胶座体外；该接头插入该连接槽时，该接头的至少一排接点与该至少一排第一接触部或该至少一排第二接触部电连接。

[0013] 其中更设有一金属外壳包覆该塑胶座体，该金属外壳至少一侧向内凸出至少一可侧向弹动的弹片，当该接头插入该连接槽时，该至少一弹片可抵靠该接头或舌片，防止该接头转折。

[0014] 其中该至少一排第一接触部和第一接脚形成在至少一排第一端子上，该至少一排第二接触部和第二接脚形成在至少一排第二端子上，该第一接触部和第二接触部分别凸出该舌片一面，该第一接触部的前端设有第一导入片，第二接触部的前端设有第二导入片，该第一接触部和第二接触部呈上下对齐，该第一导入片和第二导入片呈一左一右错开。

[0015] 所述的双面电连接的电连接插座构造，其特征在于：该至少一排第一接触部和第一接脚形成在至少一排第一端子上，该第一端子一体设有该第一接触部、一第一延伸部、一第一固定部及该第一接脚；该至少一排第二接触部和第二接脚形成在至少一排第二端子上，该第二端子一体设有该第二接触部、一第二延伸部、一第二固定部及该第二接脚。

[0016] 所述的双面电连接的电连接插座构造，其特征在于：该一排第一端子的第一接触部和一排第二端子的第二接触部分别凸出该舌片一面。

[0017] 所述的双面电连接的电连接插座构造，其特征在于：该连接槽于舌片两面的空间形成相容的轮廓，该接头仅有一面设有该至少一排接点，该接头的至少一排接点仅与该舌片其中一面的至少一排接触部电连接。

[0018] 所述的双面电连接的电连接插座构造，其特征在于：更设有一金属外壳包覆该塑胶座体，该舌片与该塑胶座体一体成型。

[0019] 所述的双面电连接的电连接插座构造，其特征在于：该舌片上设有多个间隔排列的透空槽，该第一端子的第一接触部和第二端子的第二接触部皆对应该透空槽弹动。

[0020] 所述的双面电连接的电连接插座构造，其特征在于：对应同一透空槽的第一端子的第一接触部与第二端子的第二接触部为一前一后相互对齐。

[0021] 所述的双面电连接的电连接插座构造，其特征在于：该第一端子的第一接触部和第二端子的第二接触部呈左右并列。

[0022] 所述的双面电连接的电连接插座构造，其特征在于：该第一端子的第一接触部是由第一延伸部板面刺破凸出，该第一接触部一端连接于第一延伸部且由前而后渐凸起延伸至另一端并成开放；该第二端子的第二接触部是由第二延伸部板面刺破凸出，该第二接触部一端连接于第二延伸部且由前而后渐凸起延伸至另一端并成开放。

[0023] 所述的双面电连接的电连接插座构造，其特征在于：该一排第一端子和一排第二端子为相同连接介面且序号相互为反向排列，该第一接触部和第二接触部呈上、下对齐。

[0024] 所述的双面电连接的电连接插座构造，其特征在于：该舌片为一电路板，该舌片上面设有多条第一电路，该第一电路于该舌片前段设有该第一接触部且于该舌片后段设有第一接点，该第一接点与该第一接脚电连接；该舌片下面设有多条第二电路，该第

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二电路于该舌片前段设有该第二接触部且于该舌片后段设有第二接点，该第二接点与该第二接脚电连接。

[0025] 所述的双面电连接的电连接插座构造，其特征在于：该接头设有一塑胶座体及一金属外壳，该金属外壳包覆该塑胶座体，该金属外壳和该塑胶座体间形成一空间，该接头插入该连接槽时该空间为该舌片所套入。

[0026] 所述的双面电连接的电连接插座构造，其特征在于：该接头不具有金 属外壳，该接头插入该连接槽时可接合于该舌片的上方或下方，即该舌片上、下方可同时插接一该接头。

[0027] 所述的双面电连接的电连接插座构造，其特征在于：该至少一排第一接触部和至少一排第二接触部为相同连接介面且序号相互为反向排列，该接头的接点朝上或朝下正反双向均可插入电连接。

[0028] 所述的双面电连接的电连接插座构造，其特征在于：其为一 USB 插座，其中该一排第一、二接触部各自有四个。

[0029] 所述的双面电连接的电连接插座构造，其特征在于：其为一 mini USB 插座，其中该一排第一、二接触部各自有五个。

[0030] 所述的双面电连接的电连接插座构造，其特征在于：该至少一排第一接触部和至少一排第二接触部为不同的连接介面，可分别与该接头及另一不同连接介面的接头电连接。

[0031] 所述的双面电连接的电连接插座构造，其特征在于：该舌片设于该连接槽内的正中间，使该连接槽于舌片的上下左右空间形成对称的轮廓。

[0032] 所述的双面电连接的电连接插座构造，其特征在于：该金属外壳至少一侧向内凸出至少一可侧向弹动的弹片，当该接头插入该连接槽时，该至少一弹片可抵靠该接头或舌片，防止该接头转折。

[0033] 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片为一中间弹片，该中间弹片位于该连接槽一侧的中间高度，该接头不具有金属外壳，该接头插入该连接槽时可接合于该舌片的上方或下方，该中间弹片抵靠该接头设有接点之一面。

[0034] 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片为二外弹片，该二外弹片位于该连接槽一侧的舌片上、下方位置，该接头设有一塑胶座体及一金属外壳，该金属外壳包覆该塑胶座体，该塑胶座体间形成一空间，该接头插入该连接槽时该空间为该舌片所套入，该金属外壳一侧之一弹片为该接头顶开，另一弹片抵靠该接头一面。

[0035] 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片更包括有二内弹片，该二内弹片设于该二外弹片内侧，该二内弹片分别抵接于该舌片一侧的上、下面。

[0036] 所述的双面电连接的电连接插座构造，其特征在于：该至少一弹片更包括有一中间弹片，该中间弹片设于该二外弹片内侧且位于该连接槽一侧 的中间高度，当该接头不具有金属外壳，该接头插入该连接槽时可接合于该舌片的上方或下方，该中间弹片抵靠该接头设有接点之一面。

[0037] 所述的双面电连接的电连接插座构造，其特征在于：该弹片一端连接于该金属

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外壳一侧接近前端并向内呈弧状延伸，该弹片设有一凸点，当该凸点受挤压即使弹片向外侧弹动。

[0038] 所述的双面电连接的电连接插座构造，其特征在于：该弹片一端连接于该金属外壳一侧板面并向外呈弧状延伸，该弹片设有一凸点，当该凸点受挤压即使弹片向外侧弹动。

[0039] 所述的双面电连接的电连接插座构造，其特征在于：该第一接触部的前端设有第一导入片，该第二接触部的前端设有第二导入片，该第一接触部和第二接触部呈上下对齐，该第一导入片和第二导入片呈一左一右错开。

[0040] 所述的双面电连接的电连接插座构造，其特征在于：该塑胶座体一端更叠堆设有至少另一连接槽，该另一连接槽内设有至少一排端子借以连接一接头。

[0041] 所述的正反双向电连接的电连接插座，其特征在于：该连接槽的上、下端较中段为窄，使其轮廓的四角形成斜边。

[0042] 所述的正反双向电连接的电连接插座，其特征在于：该连接槽的前端四斜边各设有一外张的导正斜板，当接头插入连接槽时碰到该导正斜板时会向连接槽中心导正。

[0043] 所述的正反双向电连接的电连接插座，其特征在于：其为一 microUSB2.0 插座，该至少一排第一接触部和至少一排第二接触部皆为一排 5 个不弹动的接点。

[0044] 所述的正反双向电连接的电连接插座，其特征在于：更设有一第二舌片，其位于该连接槽内并与该舌片呈同一水平并列；至少一排第三接触部，其间隔排列位于该第二舌片一面，每一第三接触部电连接一接脚伸出该塑胶座体外；及至少一排第四接触部，其间隔排列位于该第二舌片另一面，每一第四接触部电连接一接脚伸出该塑胶座体外；其中该至少一排第一接触部和至少一排第三接触部为相同连接介面且序号相互为反向排列，该至少一排第二接触部和至少一排第四接触部为相同连接介面且序号相互为反向排列。

[0045] 所述的正反双向电连接的电连接插座，其特征在于：其为一 micro USB3.0 插座，该至少一排第一接触部、至少一排第二接触部、至少一排第三接触部及至少一排第四接触部皆为一排 5 个不弹动的接点。

[0046] 所述的正反双向电连接的电连接插座，其特征在于：该连接槽内更设有一第二舌片与该舌片呈同一水平并列，且更设有至少一排第三接触部，其间隔排列位于该第二舌片一面，每一第三接触部电连接一接脚伸出该塑胶座体外。

[0047] 本实用新型的上述及其他目的、优点和特色由以下较佳实施例的详细说明中并参考图式当可更加明白。

【附图说明】

[0048] 图 1 是本实用新型第一实施例的立体图。

[0049] 图 2 是本实用新型第一实施例的侧视剖面图。

[0050] 图 3 是本实用新型第一实施例的上视剖面图。

[0051] 图 4 是本实用新型第一实施例的使用状态图。

[0052] 图 4A 是本实用新型第一实施例的前视图及 USB2.0 接头正向的前视图。

[0053] 图 5 是本实用新型第一实施例的使用状态图。

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[0054] 图 5A 是本实用新型第一实施例的前视图及 USB2.0 接头反向的前视图。

[0055] 图 6 是本实用新型第二实施例的侧视剖面图。

[0056] 图 7 是本实用新型第三实施例的侧视剖面图。

[0057] 图 8 是本实用新型第四实施例的侧视剖面图。

[0058] 图 9 是本实用新型第四实施例的上视剖面图。

[0059] 图 10 是本实用新型第五实施例的侧视剖面图。

[0060] 图 11 是本实用新型第五实施例的上视剖面图。

[0061] 图 12 是本实用新型第五实施例的前视图。

[0062] 图 13 是本实用新型第六实施例的侧视剖面图。

[0063] 图 14 是本实用新型第六实施例的上视剖面图。

[0064] 图 15 是本实用新型第六实施例的剖面仰视图。

[0065] 图 16 是本实用新型第六实施例的使用状态图。

[0066] 图 17 是本实用新型第六实施例的使用状态图。

[0067] 图 18A、图 18B、图 18C 是一轻巧型随身碟的三视图。

[0068] 图 19 是本实用新型第六实施例的使用状态图。

[0069] 图 20 是另一轻巧型随身碟的侧视图。

[0070] 图 21 是本实用新型第六实施例的使用状态图。

[0071] 图 22 是本实用新型第七实施例的侧视剖面图。

[0072] 图 23 是本实用新型第八实施例的立体图。

[0073] 图 24 是本实用新型第九实施例的侧视剖面图。

[0074] 图 25 是本实用新型第九实施例的前视图。

[0075] 图 26 是本实用新型第九实施例的底视剖面图。

[0076] 图 27 是本实用新型第九实施例的上视剖面图。

[0077] 图 28 是本实用新型第九实施例的使用状态图。

[0078] 图 29 是本实用新型第九实施例的使用状态图。

[0079] 图 30 是本实用新型第十实施例的侧视剖面图。

[0080] 图 31 是本实用新型第十实施例的上视剖面图。

[0081] 图 32 是本实用新型第十实施例的底视剖面图。

[0082] 图 33 是本实用新型第十一实施例的前视剖面图。

[0083] 图 34 是本实用新型第十一实施例的侧视剖面图。

[0084] 图 35 是本实用新型第十二实施例的立体分解图。

[0085] 图 36 是本实用新型第十二实施例的立体组合图。

[0086] 图 37 是本实用新型第十二实施例的前视图。

[0087] 图 38 是本实用新型第十二实施例的使用状态立体图。

[0088] 图 39 是本实用新型第十二实施例的使用状态立体图。

[0089] 图 40 是本实用新型第十二实施例的使用状态立体图。

[0090] 图 41 是本实用新型第十二实施例的使用状态立体图。

[0091] 图 42 是本实用新型第十三实施例的立体组合图。

[0092] 图 43 是本实用新型第十三实施例的使用状态立体图。

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[0093] 图 44 是本实用新型第十三实施例的使用状态立体图。

[0094] 图 45 是本实用新型第十四实施例的立体组合图。

[0095] 图 46 是本实用新型第十四实施例的使用状态立体图。

[0096] 图 47 是本实用新型第十四实施例的使用状态立体图。

[0097] 图 48 是本实用新型第十五实施例的立体组合图。

[0098] 图 49 是本实用新型第十六实施例的立体组合图。

[0099] 图 50 是本实用新型第十七实施例的立体组合图。

[0100] 图 51 是本实用新型第十八实施例的立体组合图。

[0101] 图 52 是本实用新型第十九实施例的立体分解图。

[0102] 图 53 是本实用新型第十九实施例的端子与塑胶座体的立体组合图。

[0103] 图 54 是本实用新型第二十实施例的立体组合图。

[0104] 图 55 是本实用新型第二十一实施例的立体组合图。

[0105] 图 56 是本实用新型第二十二实施例的立体组合图。

[0106] 图 57 是本实用新型第二十三实施例的立体组合图。

[0107] 图 58 是本实用新型第二十四实施例的立体组合图。

[0108] 图 59 是本实用新型第二十五实施例的立体组合图。

[0109] 图 60 是本实用新型第二十六实施例的立体组合图。

[0110] 图 61 是本实用新型第二十七实施例的立体组合图。

[0111] 图 62 是本实用新型第二十八实施例的立体组合图。

[0112] 图 63 是本实用新型第二十九实施例的立体组合图。

[0113] 图 64 是本实用新型第三十实施例的立体组合图。

[0114] 图 65 是本实用新型第三十一实施例的立体组合图。

[0115] 图 66 是本实用新型第三十二实施例的立体组合图。

[0116] 图 67 是本实用新型第三十二实施例的前视图。

[0117] 图 68 是本实用新型第三十二实施例的侧视剖面图。

[0118] 图 69 是本实用新型第三十二实施例的使用状态图。

[0119] 图 70 是本实用新型第三十二实施例的使用状态图。

[0120] 图 71 是本实用新型第三十二实施例的使用状态图。

[0121] 图 72 是本实用新型第三十三实施例的立体组合图。

[0122] 图 73 是本实用新型第三十三实施例的前视图。

[0123] 图 74 是本实用新型第三十三实施例的使用状态图。

[0124] 图 75 是本实用新型第三十三实施例的使用状态图。

[0125] 图 76 是本实用新型第三十四实施例的前视图。

[0126] 图 77 是本实用新型第三十四实施例的使用状态图。

[0127] 图 78 是本实用新型第三十四实施例的使用状态图。

[0128] 图 79 是本实用新型第三十四实施例的使用状态图。

[0129] 图 80 是为 micro USB3.0 接头的剖面图。

[0130] 图 81 是本实用新型第三十五实施例的前视图。

[0131] 图 82 是本实用新型第三十五实施例的使用状态图。

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[0132] 图 83 是本实用新型第三十五实施例的使用状态图。

[0133] 图 84 是本实用新型第三十六实施例的使用状态图。

[0134] 图 85 是本实用新型第三十六实施例的使用状态图。

[0135] 图 86 是本实用新型在增加高频时的端子上视示意图。

[0136] 图 87 是本实用新型在增加高频时的端子侧视示意图。

[0137] 图 88 是本实用新型在降低高频时的端子上视示意图。

[0138] 图 89 是本实用新型在降低高频时的端子侧视示意图。

[0139] USB2.0 接头 10 接点 11 塑胶座体 12 金属外壳 13

[0140] 空间 14 USB3.0 插头 15 接点 16 接点 17

[0141] 轻巧型随身碟 20 接头 21 接点 22 轻巧型随身碟 25

[0142] 接头 28 接点 26 接点 27

[0143] 塑胶座体 30 端子卡槽 31 后盖 32 连接槽 35

[0144] 连接槽 36 连接槽 37 连接槽 38 连接槽 39

[0145] 金属外壳 40 外弹片 41 内弹片 42 中间弹片 43

[0146] 连接槽 45 凸点 46 导正斜板 47 斜边 48

[0147] 凸点 49 抵紧弹片 410 定位凸块 412 导入斜片 411

[0148] 弹性卡扣 413

[0149] 舌片 50 透空槽 51 第一电路 52 第一接触部 53

[0150] 第一接点 54 第二电路 56 第二接触部 57 第二接点 58

[0151] 第一端子 60 第一接触部 61 第一延伸部 62 第一固定部 63

[0152] 第一接脚 64 第一导入片 611 开孔 620 第二端子 70 第二接触部 71

[0153] 第二延伸部 72 第二固定部 73 第二接脚 74 第二导入片 75

[0154] 第一接脚 80 第二接脚 85

[0155] 第一端子 65 第一接触部 66 第一延伸部 67 第一固定部 68

[0156] 第一接脚 69 第二端子 90 第二接触部 91 第二延伸部 92

[0157] 第二固定部 93 第二接脚 94

[0158] 第三端子 100 第三接触部 101 第四端子 105 第四接触部 106

[0159] micro USB2.0 接头 110 塑胶座 114 连接槽 111

[0160] 接点 112 弹性卡扣 113 micro USB3.0 接头 115

[0161] 接点 117 接点 118 minic USB2.0 接头 120

[0162] 金属壳 121

【具体实施方式】

[0163] 请参阅图 1、图 2 及图 3，本实施例为一 USB2.0 插座，其包括一塑胶座体 30、一金属外壳 40、一舌片 50、一排第一端子 60、及一排第二端子 70，其中：

[0164] 该塑胶座体 30 设有一排端子卡槽 31，其后端由下而上盖合一后盖 32。

[0165] 该金属外壳 40 包覆该塑胶座体 30，该金属外壳的前段形成一连接槽 45，该连接槽 45 可连接一 USB2.0 接头。

[0166] 该舌片 50 是与该塑胶座体 30 一体射出成型，该舌片 50 呈水平位设于该塑胶座

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