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New Utility Patent Specification

(This specification format, order, and bold text should not be altered. Please do not fill in the section marked with an asterisk.)

* Application Number: 96215160

* Date of Application: 9.10.2007; *IPC Classification: H01R 33/90 (2006.01)

I. Name of Invention: (Chinese / English)

A Adapter Device for Simultaneously Connecting Two Types of Protocol Connectors

II. Applicant: (Total: 1 person)

Name: (Chinese / English)

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Representative: (Chinese / English)

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Nationality: (Chinese / English)

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III. Creator: (Total: 1 person)

Name: (Chinese / English)

Jiang Ruidu

Nationality: (Chinese / English)

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IV. Declaration Items:

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VIII. Description of New Utility Model:

[Technical Field of the New Utility Model]

This invention relates to an adapter device for electrical connectors, specifically an adapter device that can simultaneously connect two types of protocol connectors.

[Existing Technology]

Currently, the most widely used data transmission specification in computers is the Universal Serial Bus (USB), with its 2.0 version theoretically capable of transmitting 48010^6 bits per second. The latest and fastest data transmission technology is the External Serial Advanced Technology Attachment (eSATA), which can theoretically achieve a transmission rate of $1.5*10^9$ bits per second.

However, the connection interfaces used by USB and eSATA technologies, including sockets and connectors, are incompatible with each other. Although the appearance of the sockets and connectors for both is similar, some manufacturers have developed an electrical connector socket that can accommodate both USB and eSATA connectors. Refer to Fig. 5 and Fig. 6 for details. This electrical connector socket primarily consists of a hollow housing (61) with an opening formed on one side, and within the housing (61), there is a flat insulating tongue section (62) extending in the direction of the opening of the housing (61). This configuration creates an eSATA slot and a USB slot between the upper and lower inner walls of the tongue section (62) and the hollow housing (61). The width of the opening corresponding to the eSATA slot is designed to match the eSATA connector and is larger than the opening corresponding to the USB slot. The top surface of the tongue section (62) is equipped with seven eSATA terminals (63), while the bottom surface of the tongue section (62) has four USB terminals (not shown in the figure).

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The aforementioned electrical connector socket is designed to accommodate either a USB connector or an eSATA connector, allowing the computer to avoid the need for separate USB and eSATA sockets for connecting USB devices and eSATA devices. However, when using this electrical connector socket, it can only connect to either the USB connector or the eSATA connector at one time, making it inconvenient for users.

[Content of the New Utility Model]

To address this issue, the primary objective of this invention is to provide an adapter device that can simultaneously connect multiple types of protocol connectors, specifically for connecting an External Serial Advanced Technology Attachment (eSATA) interface device and a Universal Serial Bus (USB) interface device, while allowing both devices to connect to a built-in electrical connector socket with eSATA and USB terminals.

The main technical means employed to achieve the aforementioned objective comprises:

An outer shell;

A combination port, which is protrudingly positioned on the outer shell, within which there are respectively an eSATA terminal group and a USB terminal group;

An eSATA slot, positioned on the outer shell and internally equipped with an eSATA pin group for electrical connection with the eSATA terminal group of the combination port;

A USB slot, positioned on the outer shell and internally equipped with a USB pin group for electrical connection with the USB terminal group of the combination port.

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By utilizing the aforementioned technical means, the application of the electrical connector socket with built-in eSATA and USB terminals can be maximized. This allows it not only to connect to eSATA devices and USB devices separately but also, through the adapter device of this invention, to enable simultaneous connections of both eSATA devices and USB devices without needing to remove any previously connected devices. This significantly increases user convenience.

[Embodiment]

Referring to Fig. 1 and Fig. 4, this invention is designed to connect with an electrical connector socket (10). The electrical connector socket (10) includes a housing (11), a tongue section (12), an External Serial Advanced Technology Attachment (eSATA) terminal group (13), and a Universal Serial Bus (USB) terminal group (14). One side of the housing (11) is formed with a T-shaped opening, while the tongue section (12) is located inside the housing (11), extending toward the direction of the opening. The eSATA terminal group (13) comprises seven terminals situated on the top surface of the tongue section (12), whereas the USB terminal group (14) consists of four terminals located on the bottom surface of the tongue section (12).

Further referring to Fig. 2, a preferred embodiment of this invention includes an outer shell (20), a combination port (30), an eSATA slot (40), and a USB slot (50).

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As seen in Fig. 3 and Fig. 4, the combination port (30) protrudes from the outer shell (20). In this embodiment, the combination port (30) is positioned at the front end of the outer shell (20) and includes:
A base body (31) that extends outwardly from the front end of the outer shell (20) and is formed with an opening (311) at its front end. In addition, the two side surfaces of the base body (31) extend outwardly at the top surface and near the opening (311) to form wing parts (312) for matching with the T-shaped opening of the electrical connector socket (10);
An upper metal grounding cover (32), which covers the upper surface of the base body (31);
A lower metal grounding cover (33), which covers the lower surface of the base body (31);
An eSATA terminal group (34), comprising seven eSATA terminals, located on the inner top wall of the base body (31). When the combination port (30) is inserted into the electrical connector socket (10), the eSATA terminal group (34) contacts and electrically connects with the eSATA terminal group (13) within the electrical connector socket (10) (as shown in Fig. 4); and
A USB terminal group (35), comprising four USB terminals, located on the inner bottom wall of the base body (31). When the combination port (30) is inserted into the electrical connector socket (10), the USB terminal group (35) contacts and electrically connects with the USB terminal group (14) within the electrical connector socket (10) (as shown in Fig. 4).
Referring to Fig. 2, the above-mentioned eSATA slot (40) is located on the outer shell (20) and is internally equipped with an eSATA pin group (41). The eSATA pin group (41) includes seven pins for corresponding electrical connection with the seven eSATA terminals in the combination port (30). In this embodiment, the eSATA slot (40) is positioned at the rear end of the outer shell (20).

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The aforementioned USB slot (50) is also located on the outer shell (20) and is built with a USB pin group (51). The USB pin group (51) consists of four USB pins for corresponding electrical connection with the four USB terminals in the combination port (30). In this embodiment, the USB slot (50) is positioned at the rear end of the outer shell (20), adjacent to the eSATA slot (40).

From the above, it can be seen that when the adapter device of this invention is connected to an electrical connector socket with built-in eSATA and USB terminals, both an eSATA device and a USB device can connect to the adapter device. Through the adapter device, these devices can simultaneously connect to the electrical connector socket, allowing the computer to communicate with both the eSATA device and the USB device at the same time. This effectively utilizes the electrical connector socket and increases user convenience.

In summary, this invention is indeed a highly progressive and practical creation that has not been found in any publications or publicly used, meeting the requirements for a utility patent application, which will be filed in accordance with the law.

[Simple Description of the Figures]

Fig. 1: It is a perspective view of a preferred embodiment of this invention from one angle.

Fig. 2: It is a perspective view of a preferred embodiment of this invention from another angle.

Fig. 3: It is a partial exploded view of the combination port in a preferred embodiment of this invention.

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Fig. 4: It is a partial cross-sectional view of a preferred embodiment of this invention inserted into an electrical connector socket with a built-in eSATA pin group and a USB pin group.

Fig. 5: It is an external view of a USB connector with the electrical connector socket that has a built-in eSATA pin group and a USB pin group.

Fig. 6: It is an external view of an eSATA connector with the electrical connector socket that has a built-in eSATA pin group and a USB pin group.

[Main Component Symbol Explanation]

(10) Electrical connector socket
(11) Housing
(12) Tongue section
(13) eSATA pin group
(14) USB pin group
(20) Outer shell
(30) Combination port
(31) Base body
(311) Opening
(312) Wing part
(32) Upper metal grounding cover
(33) Lower metal grounding cover
(34) eSATA terminal group
(35) USB terminal group
(40) eSATA slot
(41) eSATA pin group
(50) USB slot
(51) USB pin group
(61) Housing
(62) Tongue section
(63) eSATA terminal

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V. Chinese Abstract of the New Utility Model:

This invention is an adapter device that can simultaneously connect two types of protocol connectors. It is designed for connection with an external Serial Advanced Technology Attachment (eSATA) terminal and a Universal Serial Bus (USB) terminal. The main feature of this invention is that it has a housing equipped with a combination port, an eSATA slot, and a USB slot. The interior walls of the combination port are divided into an eSATA terminal group and a USB terminal group. Inside the eSATA slot and USB slot, there are respectively an eSATA pin group and a USB pin group. The eSATA pin group and USB pin group are electrically connected to the eSATA terminal group and USB terminal group of the combination port. In this way, this invention can provide a means for the electrical connector socket to simultaneously connect one eSATA device and one USB device through this invention.

VI. English Abstract of the New Utility Model:

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IX. Patent Claims:

1. A device for simultaneously connecting two types of protocol connectors, comprising:
an outer shell;
a combination port, which is protruding from the outer shell, wherein the combination port is internally provided with an external Serial Advanced Technology Attachment (eSATA) terminal group and a Universal Serial Bus (USB) terminal group;
an eSATA slot, which is located on the outer shell and is internally equipped with an eSATA pin group for corresponding electrical connection with the eSATA terminal group in the combination port;
a USB slot, which is located on the outer shell and is internally equipped with a USB pin group for corresponding electrical connection with the USB terminal group in the combination port.

2. The device for simultaneously connecting two types of protocol connectors as described in Claim 1, wherein the combination port is positioned at the front end of the outer shell and further comprises:
a base body, which extends outwardly from the front end of the outer shell and has an opening formed at its front end, with the eSATA terminal group and the USB terminal group respectively located on the top wall and bottom wall inside the opening of the base body;
an upper metal grounding cover, which covers the outer upper surface of the base body;
a lower metal grounding cover, which covers the outer lower surface of the base body.

3. The device for simultaneously connecting two types of protocol connectors as described in Claim 2, wherein the two side surfaces of the base body extend outwardly to form wing parts near the top surface and the opening of the base body.

4. The device for simultaneously connecting two types of protocol connectors as described in any one of Claims 1 to 3, wherein the eSATA slot is located at the rear end of the outer shell.

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5. The device for simultaneously connecting two types of protocol connectors as described in any one of Claims 1 to 3, wherein the USB slot is located at the rear end of the outer shell.

X. Figures:

As shown on the next page.

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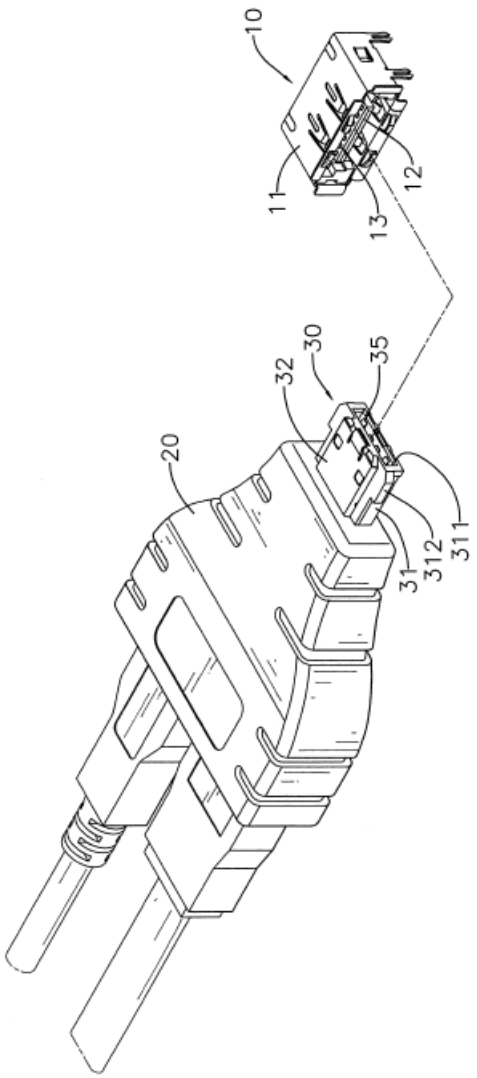

Fig. 1

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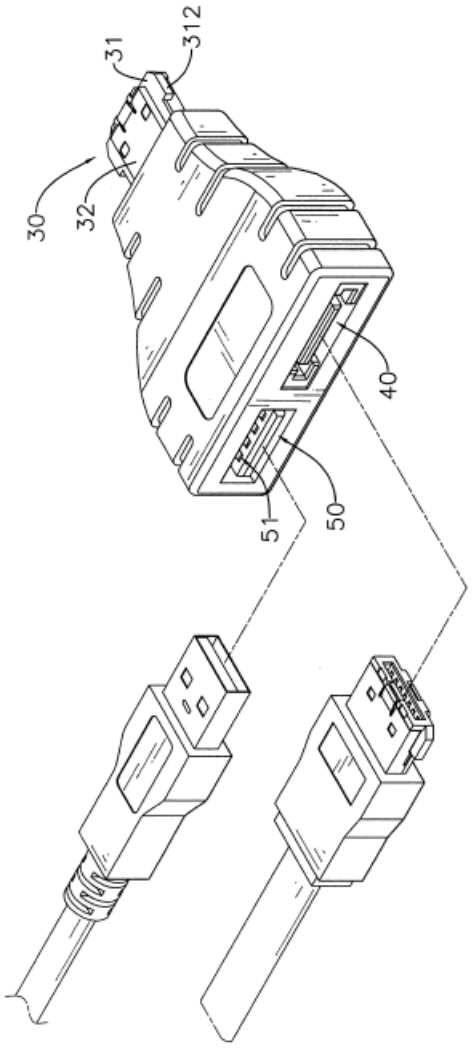

Fig. 2

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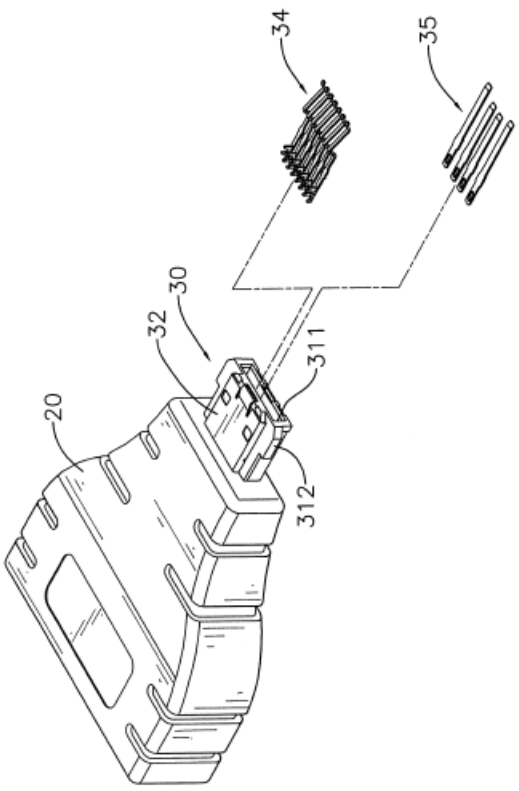

Fig. 3

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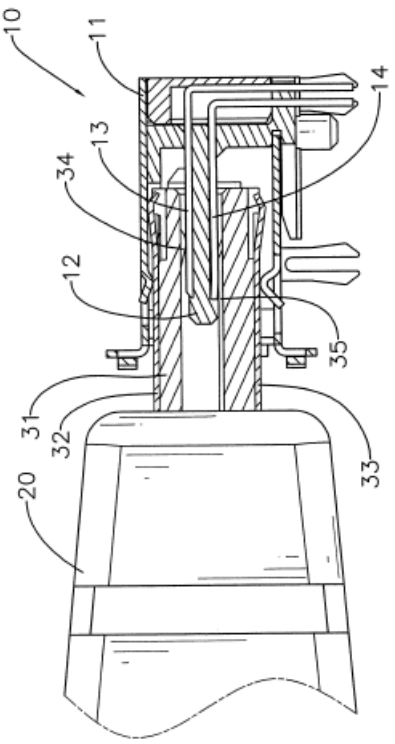

Fig. 4

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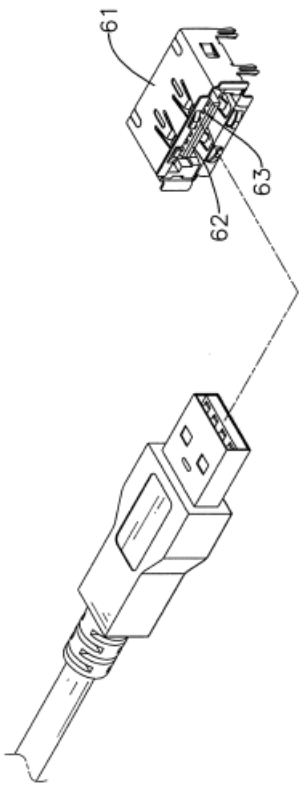

Fig. 5

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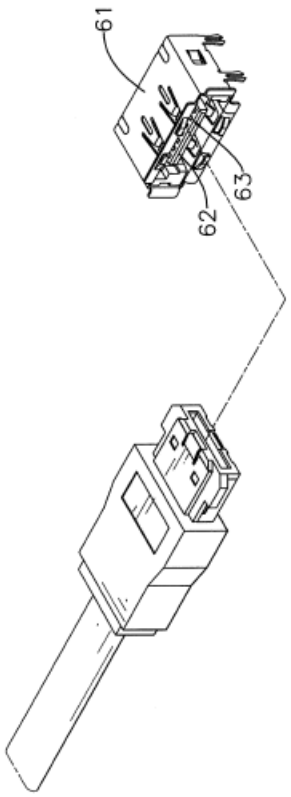

Fig. 6

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VII. Designated Representative Drawing:

(I) The designated representative drawing for this case is: Fig. 1.

(II) Simple descriptions of the component symbols in this representative drawing:

(10) Electrical connector socket
(11) Housing
(12) Tongue section
(13) eSATA terminal group
(20) Outer shell
(30) Combination port
(31) Base body
(311) Opening
(312) Wing section
(32) Upper metal grounding cover
(35) USB terminal group

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Declaration of Dr. Huang Gao

1. I, Dr. Huang Gao, hereby certify that I am a professional translator fluent in both Chinese and English and I am competent to translate from Chinese into English.

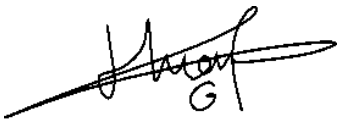
2. I hereby certify that I prepared the foregoing translation of TWM327587U and that it is, to the best of my knowledge and belief, a true and accurate English translation of this Chinese document.

3. I acknowledge that willful false statements and the like are punishable by fine and/or imprisonment.

4. All statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true.

5. I declare under penalty of perjury that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. § 1001.

Executed on: 11/24/2025

Signed: 

Dr. Huang Gao

M327587

公告本

新型專利說明書

（本說明書格式、順序及粗體字，請勿任意更動，※記號部分請勿填寫）

※ 申請案號：96215160

※ 申請日期：96.9.10　　※IPC 分類：H01R 33/90 (2006.01)

一、新型名稱：（中文/英文）

可供同時插接兩種協定接頭之轉接裝置

二、申請人：（共 1 人）

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國　籍：（中文/英文）

中華民國

四、聲明事項：

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M327587

公告本

新型專利說明書

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國　籍：（中文/英文）

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四、聲明事項：

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八、新型說明：

【新型所屬之技術領域】

本創作係關於一種電連接器之轉接裝置，尤指一種可供同時插接兩種協定接頭之轉接裝置。

【先前技術】

按，現今電腦上，最普及的資料傳輸規格莫過於通用序列匯流排（Universal Serial Bus；USB），其 2.0 版本之理論傳輸值可到達每秒傳送 $480*10^6$ 個位元；而目前最新最快的資料傳輸技術，則非外部序列高階技術配置（External Serial Advanced Technology Attachment；eSATA)技術莫屬，此規格之理論傳輸值可到達每秒 $1.5*10^9$ 個位元。

然上述的 USB 及 eSATA 技術所使用的連接介面，包含插座和接頭均互不相容，惟兩者的插座和接頭之外型類似，因此有廠商製作出一種可適用 USB 和 eSATA 接頭插接的電連接器插座，請參閱第五與六圖所示，該電連接器插座主要係一中空殼體（６１）之一側面形成有一開口，且該殼體（６１）內係設有一朝殼體（６１）開口方向延伸之片狀絕緣舌部（６２），如此即於該舌部（６２）和該中空殼體（６１）之上、下內壁間分別形成有一 eSATA 插槽和一 USB 插槽，且該開口於對應 eSATA 插槽處之寬度係為匹配 eSATA 接頭，而較對應 USB 插槽處之開口大，其中，該舌部（６２）之頂面上係設有七個 eSATA 端子

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（６３），而舌部（６２）底面上則設有四個 USB 端子（圖中未示）。

上述電連接器插座係可供一 USB 接頭或一 eSATA 接頭插接，因而可令電腦毋須為連接 USB 裝置和 eSATA 裝置而設置一 USB 插座和一 eSATA 插座；惟在使用該電連接器插座時，其僅能供選擇連接 USB 接頭或 eSATA 接頭其中之一，而無法同時使用兩者，故使用上仍有其不便利之處。

【新型內容】

為此，本創作之主要目的在提供一種可供同時插接兩種協定接頭之轉接裝置，其可供一外部序列高階技術配置（External Serial Advanced Technology Attachment；eSATA）介面裝置和一通用序列匯排流（Universal Serial Bus；USB）介面裝置連接，而同時將該兩裝置連接至一內建有 eSATA 端子和 USB 端子之電連接器插座。

為達成前述目的所採取之主要技術手段係令前述轉接裝置包括：

一外殼；

一二合一接頭，係凸出設於該外殼上，且該二合一接頭內內分別設置有一 eSATA 端子組和一 USB 端子組；

一 eSATA 插槽，係設於該外殼上，且內設有一供與該二合一接頭之 eSATA 端子組電連接的 eSATA 接腳組；

一 USB 插槽，係設於該外殼上，且內設有一供與該二

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合一接頭之 USB 端子組電連接的 USB 接腳組。

利用上述技術手段，即可將該內建有 eSATA 端子和 USB 端子之電連接器插座的應用發揮至極限，使其不但可供分別連接 eSATA 裝置和 USB 裝置，更可藉由本創作之轉接裝置而使該電連接插座可同時連接 eSATA 裝置和 USB 裝置，而毋需先將原來已插接的裝置移除，因此可增加使用者操作之便利性。

【實施方式】

請參閱第一與四圖所示，本創作係供與一電連接器插座（１０）連接，該電連接器插座（１０）係包括一殼體（１１）、一舌部（１２）、一外部序列高階技術配置（External Serial Advanced Technology Attachment；eSATA）端子組（１３）和一通用序列匯排流（Universal Serial Bus；USB）端子組（１４），其中該殼體（１１）之一側面係形成有一 T 形開口，另該舌部（１２）係設於該殼體（１１）內，且朝向該開口方向延伸，又該 eSATA 端子組（１３）係包含七個端子設於該舌部（１２）之頂面，而該 USB 端子組（１４）係包含四個端子設於該舌部（１２）之底面。

另請進一步參閱第二圖所示，本創作之一較佳實施例係包括一外殼（２０）、一二合一接頭（３０）、一 eSATA 插槽（４０）以及一 USB 插槽（５０）。

請配合參閱第三與四圖所示，上述二合一接頭（３０）

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係凸出設於該外殼（２０）上，於本實施例中，該二合一接頭（３０）係設於該外殼（２０）之前端，並包括：

一座體（３１），係自該外殼（２０）之前端向外一體延伸成形，且該座體（３１）之前端係形成有一開口（３１１），又該座體（３１）之兩側面於靠近座體（３１）之頂面和開口（３１１）處係分別向外側延伸形成一翼部（３１２），以匹配該電連接器插座（１０）之Ｔ形開口；

一上金屬接地罩（３２），係蓋設於該座體（３１）之外上表面；

一下金屬接地罩（３３），係蓋設於該座體（３１）之外下表面；

一 eSATA 端子組（３４），係包含七個 eSATA 端子，且係設於該座體（３１）之內頂壁，當該二合一接頭（３０）插入該電連接器插座（１０）時，此 eSATA 端子組（３４）係與該電連接器插座（１０）內的 eSATA 端子組（１３）接觸而電連接（如第四圖所示）；及

一 USB 端子組（３５），係包含四個 USB 端子，且係設於該座體（３１）之內底壁，當該二合一接頭（３０）插入該電連接器插座（１０）時，此 USB 端子組（３５）係與該電連接器插座（１０）內的 USB 端子組（１４）接觸而電連接（如第四圖所示）。

請參閱第二圖所示，上述 eSATA 插槽（４０）係設於該外殼（２０）上，且內設有一 eSATA 接腳組（４１），該 eSATA 接腳組（４１）係包含有七個接腳，以供與該

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二合一接頭（３０）中七個 eSATA 端子對應電連接；於本實施例中，該 eSATA 插槽（４０）係設於該外殼（２０）之後端。

上述 USB 插槽（５０）係設於該外殼（２０）上，且內建有一 USB 接腳組（５１），該 USB 接腳組（５１）係包含有四個 USB 接腳，以供與該二合一接頭（３０）中四個 USB 端子對應電連接；於本實施例中，該 USB 插槽（５０）係設於該外殼（２０）之後端，而與該 eSATA 插槽（４０）相鄰。

由上述可知，當將本創作之轉接裝置連接至一內建有 eSATA 端子和 USB 端子之電連接器插座時，即可令一 eSATA 裝置和一 USB 裝置連接本創作之轉接裝置上，而透過本創作之轉接裝置而同時連接該電連接器插座，令電腦可同時與該 eSATA 裝置和 USB 裝置連線，因而得以有效利用該電連接器插座，且增加使用者操作之便利性。

綜上所述，本創作實為一極具進步性與實用性之佳作，且未見於刊物或公開使用，符合新型專利之申請要件，爰依法提出申請。

【圖式簡單說明】

第一圖：係本創作一較佳實施例之一角度外觀圖。

第二圖：係本創作一較佳實施例之另一角度外觀圖。

第三圖：係本創作一較佳實施例中一二合一接頭之部份分解圖。

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第四圖：係本創作一較佳實施例插入一內建有一eSATA端子組和一USB端子組之電連接器插座的部分剖面圖。

第五圖：係一USB接頭與該內建有一eSATA端子組和一USB端子組之電連接器插座的外觀圖。

第六圖：係一eSATA接頭與該內建有一eSATA端子組和一USB端子組之電連接器插座的外觀圖。

【主要元件符號說明】

（10）電連接器插座

（11）殼體　　（12）舌部

（13）eSATA端子組　　（14）USB端子組

（20）外殼

（30）二合一接頭　　（31）座體

（311）開口　　（312）翼部

（32）上金屬接地罩　　（33）下金屬接地罩

（34）eSATA端子組　　（35）USB端子組

（40）eSATA插槽　　（41）eSATA接腳組

（50）USB插槽　　（51）USB接腳組

（61）殼體　　（62）舌部

（63）eSATA端子

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五、中文新型摘要：

本創作係一種可供同時插接兩種協定接頭之轉接裝置，係供應用與一內建有外部序列高階技術配置（External Serial Advanced Technology Attachment；eSATA）端子和通用序列匯排流（Universal Serial Bus；USB）端子之電連接器插座連接，本創作主要係於一外殼上設有一二合一接頭、一 eSATA 插槽和一 USB 插槽，其中該二合一接頭內壁之上下兩側係分設一 eSATA 端子組和一 USB 端子組，而該 eSATA 插槽和 USB 插槽內則分別設有一 eSATA 接腳組和一 USB 接腳組，且該 eSATA 接腳組和 USB 接腳組係分別與二合一接頭的 eSATA 端子組和 USB 端子組電連接；如此一來，本創作即能同時提供可令該電連接器插座可透過本創作同時連接一 eSATA 裝置以及一 USB 裝置。

六、英文新型摘要：

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九、申請專利範圍：

1．一種可供同時插接兩種協定接頭之轉接裝置，係包括：

一外殼；

一二合一接頭，係凸出設於該外殼上，且該二合一接頭內分別設置有一外部序列高階技術配置（eSATA）端子組和一通用序列匯排流（USB）端子組；

一 eSATA 插槽，係設於該外殼上，且內設有一供與該二合一接頭之 eSATA 端子組對應電連接的 eSATA 接腳組；

一 USB 插槽，係設於該外殼上，且內設有一供與該二合一接頭之 USB 端子組對應電連接的 USB 接腳組。

2．如申請專利範圍第 1 項所述可供同時插接兩種協定接頭之轉接裝置，該二合一接頭係設於該外殼之前端，並進一步包括：

一座體，係自該外殼之前端向外一體延伸成形，且該座體前端係形成有一開口，而該 eSATA 端子組和該 USB 端子組則分別設於該座體之開口內頂壁及內底壁；

一上金屬接地罩，係蓋設於該座體之外上表面；

一下金屬接地罩，係蓋設於該座體之外下表面。

3．如申請專利範圍第 2 項所述可供同時插接兩種協定接頭之轉接裝置，又該座體之兩側面於靠近座體之頂面和開口處係分別向外側延伸形成一翼部。

4．如申請專利範圍第 1 至 3 項中任一項所述可供同

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時插接兩種協定接頭之轉接裝置，該 eSATA 插槽係設於該外殼之後端。

5．如申請專利範圍第1至3項中任一項所述可供同時插接兩種協定接頭之轉接裝置，該 USB 插槽係設於該外殼之後端。

十、圖式：

如次頁

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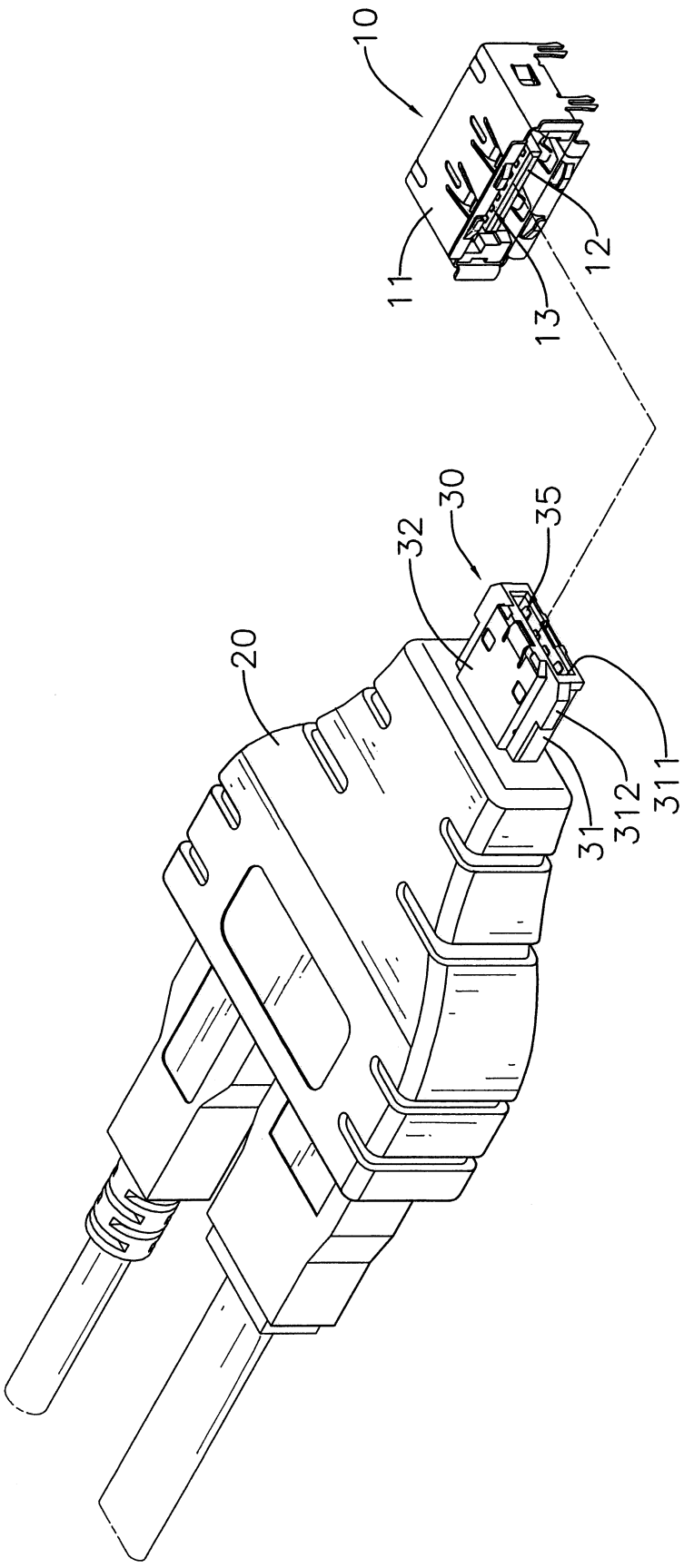
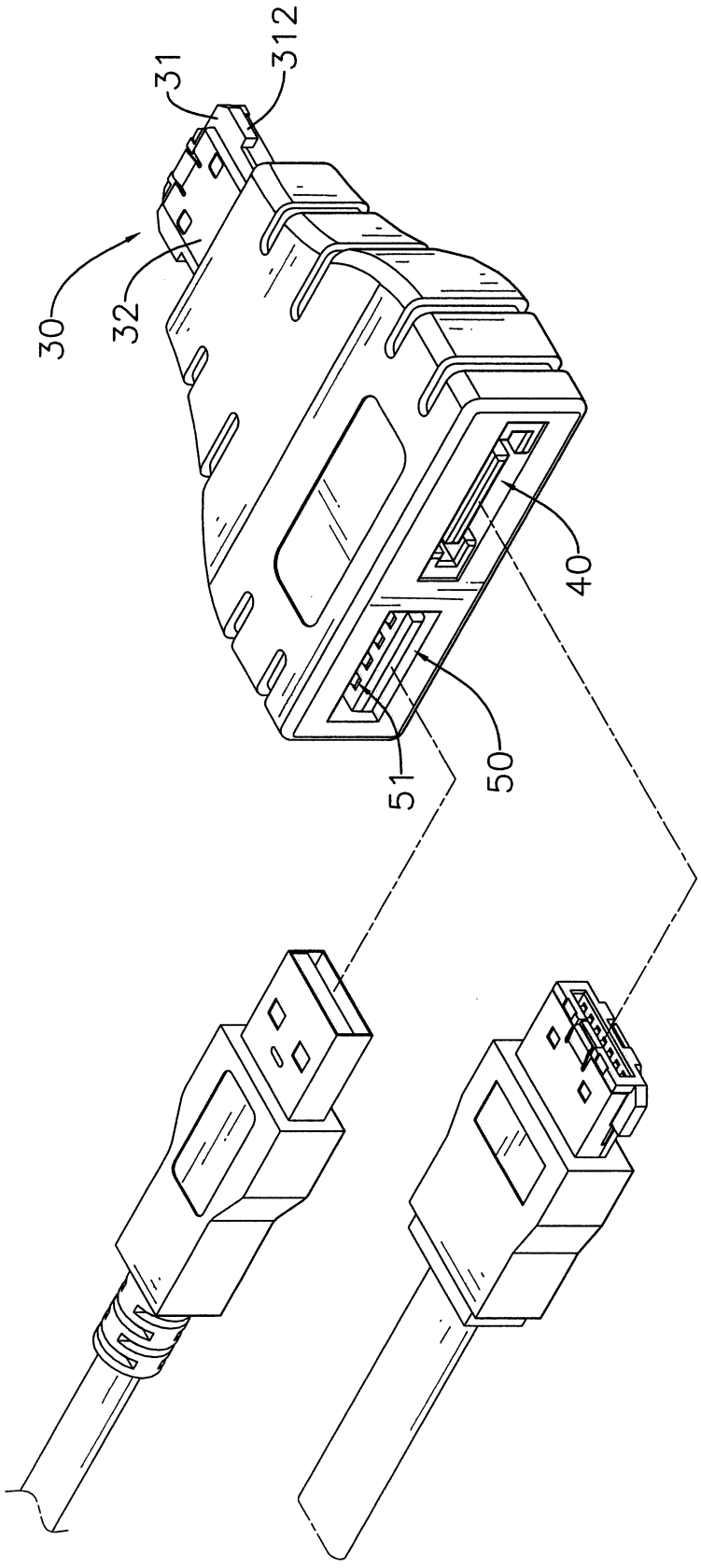
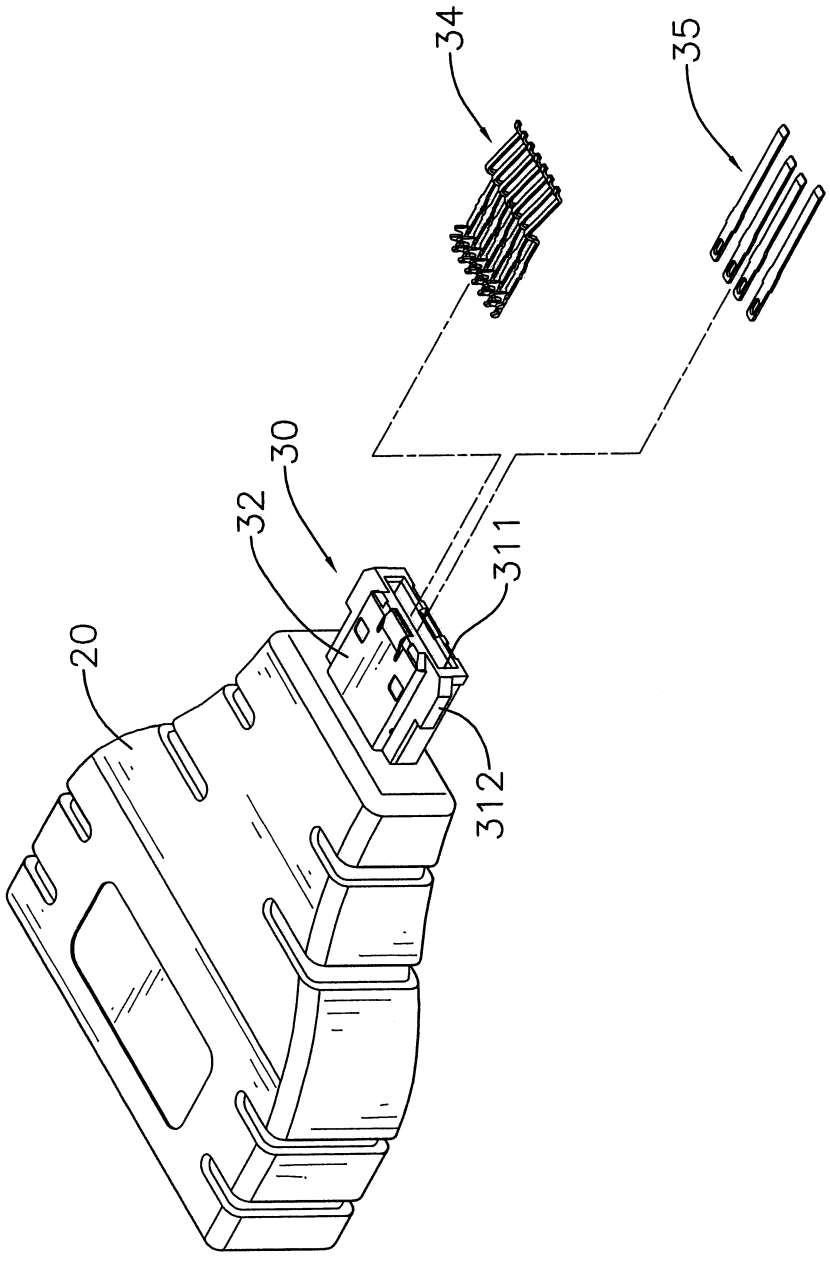


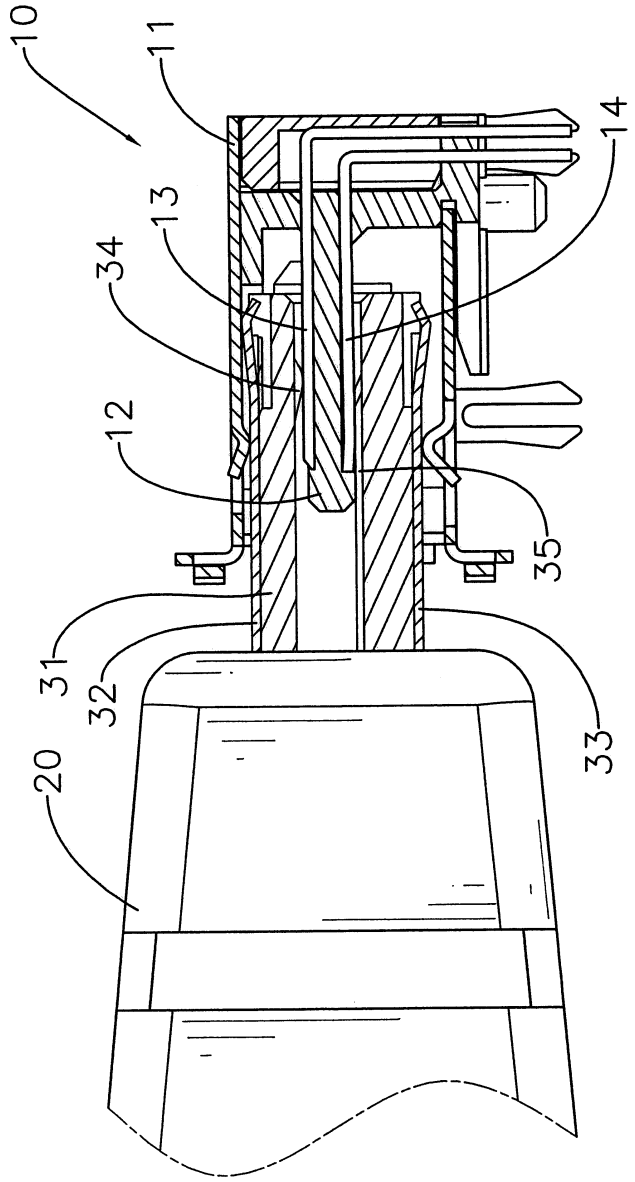
第一圖



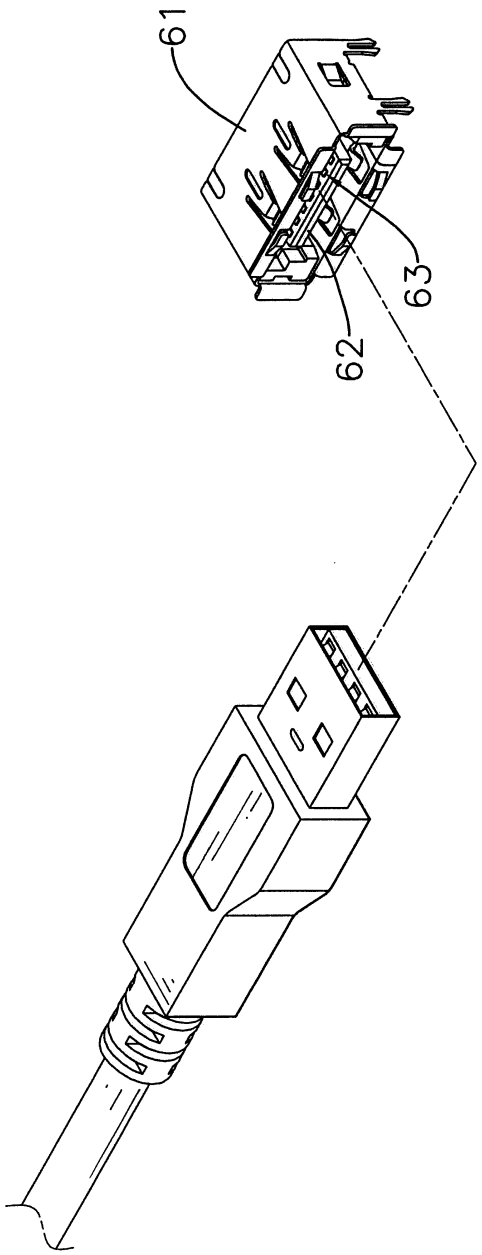
第一圖



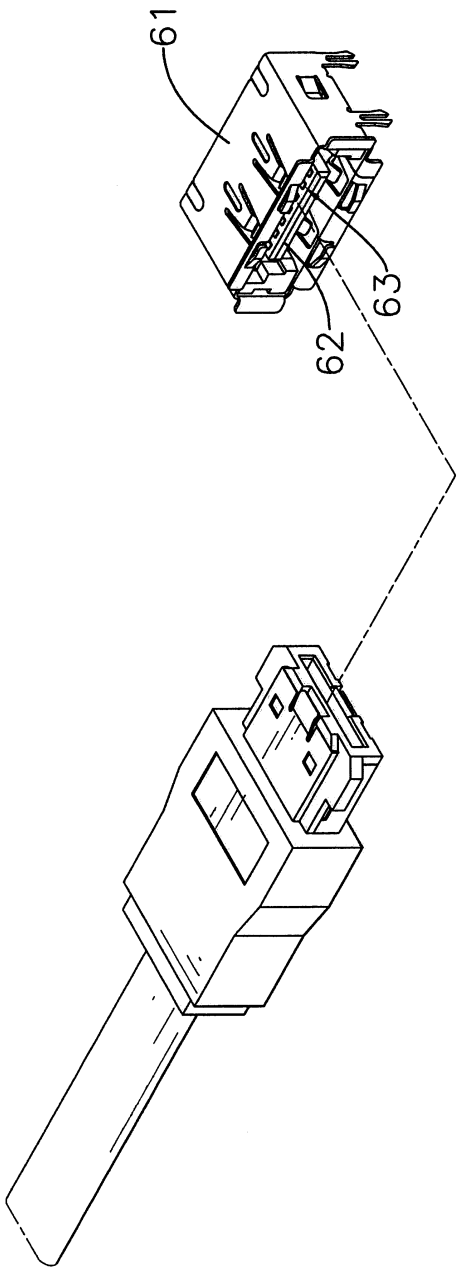
第三圖



第四圖



第五圖



第六圖

七、指定代表圖：

(一)本案指定代表圖為：第（ 一 ）圖。

(二)本代表圖之元件符號簡單說明:

（１０）電連接器插座　　（１１）殼體

（１２）舌部　　（１３）eSATA 端子組

（２０）外殼

（３０）二合一接頭　　（３１）座體

（３１１）開口　　（３１２）翼部

（３２）上金屬接地罩　　（３５）USB 端子組

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