
[19] State Intellectual Property Office of the People's Republic of China

[51] Int. Cl.

H01R 24/06 (2006.01)

H01R 13/40 (2006.01)

H01R 13/70 (2006.01)



[12] Detailed Explanation of New Utility Model Patent

Patent No. ZL 200620016890.6

[45] Date of Authorization Announcement: March 19, 2008 [11] Authorization Announcement

Number: CN 201038524Y

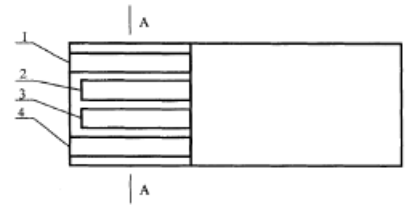
<p>[22] Date of Application: July 11, 2006</p> <p>[21] Application Number: 200620016890.6</p> <p>[73] Patent Holder: Sun Zhenyu</p> <p>Address: 25F, West Building, Changxing Plaza, Taoyuan Road, Nanshan District, Shenzhen, Guangdong Province, China; Postal code: 518052</p> <p>[72] Inventor: Sun Zhenyu</p>	<p>Scope of Patent Claims: 1 page; Detailed Explanation: 2 pages; Attached Drawings: 1 page</p>
--	---

[54] Title of New Utility Model

Double-sided Universal Serial Bus Interface

[57] Abstract

A double-sided universal serial bus (USB) interface capable of being inserted into a computer USB socket in both directions. It features two sets of standard USB contact points, allowing it to be inserted into a standard USB socket without distinguishing the direction. Regular USB interfaces can only be inserted into standard USB sockets in one direction. In contrast, this interface has two sets of symmetrical contact points, enabling it to be inserted into a USB socket in either direction for normal use. One version of this interface has a solid structure with exposed contacts, featuring a set of standard contact points on each side. In certain applications, the contacts need to connect to the device via a switch. The other version has a hollow cross-section with internal contact points, where each inner wall of the housing has a set of standard contact points. The double-sided USB interface is fully compatible with standard sockets, and both structures seamlessly integrate with standard USB sockets, making it user-friendly and compact.



1. The double-sided universal serial bus interface, characterized by having two contact surfaces, each equipped with a set of standard contact points or partial standard contact points for the universal serial bus interface.
2. The double-sided universal serial bus interface according to Claim 1, characterized by one surface of the interface having a USB port, and after rotating it 180 degrees, there is another USB port.
3. The double-sided universal serial bus interface according to Claim 1, characterized by each contact surface having a set of USB contact points, where the two sets of contact points are centrally symmetrical.
4. The double-sided universal serial bus interface according to Claim 1, characterized by the standard contact points being capable of isolation using a switch to prevent possible short circuits between the contact points on the two surfaces.

Double-Sided Universal Serial Bus Interface

Technical Field

This new utility model relates to a universal serial bus (USB) interface, particularly one that has two sets of standard contact points.

Background Technology

Currently, known universal serial bus interfaces consist of a set of contact points located on one side of the interface, which connect with the device for communication and power supply. However, since the conventional USB interface only has a single set of unidirectional contact points, it is necessary to determine the correct connection direction when connecting, which can be inconvenient for users. If connected incorrectly, it may cause the connected device to malfunction or even become damaged.

Content of Invention

In order to overcome the limitation of existing universal serial bus (USB) interfaces needing to distinguish connection directions, this new utility model provides an interface that can be inserted directly into a device without regard to direction, allowing for convenient use.

The technical solution adopted to resolve its technical problem involves using two sets of standard universal serial bus (USB) contact points, with standard contact points on each side. This allows for connection from one direction and, upon rotating it 180 degrees, also enables normal connection from the opposite direction, thus eliminating the need to distinguish directions as required by conventional USB interfaces. When using an exposed contact structure, to prevent potential short circuit issues in some implementations, a switch can be used to isolate the contact points on the two surfaces; alternatively, two sets of internal contact structures can be employed to mitigate potential short circuits. This way, when the standard USB contact points on the front side are connected, the contact points on the back side are isolated from the connection, ensuring that when any contact point on one side makes connection, the other side's contact points do not short-circuit with the currently connected points. The technical approaches applicable to this new utility model include exposed contact structures, internal contact structures, and other specific methods.

Advantages of the New Utility Model: The new utility model allows for convenient connections without distinguishing the direction of the universal serial bus (USB) interface, thereby eliminating the risks

associated with reverse connections commonly seen in standard interfaces. It offers ease of use and prevents accidental reverse connections that could lead to improper operation or damage to the connected device. In addition, due to its symmetrical structure, the design of the product is more convenient and aesthetically pleasing.

Explanation of the Attached Figures

The following further explains this new utility model with reference to the attached figures and embodiments:

Fig. 1 is a front view of the exposed contact interface mechanism of this new utility model.

Fig. 2 is a cross-sectional view of the exposed contact interface mechanism of this new utility model.

Fig. 3 is a front view of the internal contact interface mechanism of this new utility model.

Fig. 4 is a cross-sectional view of the internal contact interface mechanism of this new utility model.

Fig. 5 is a front view of the exposed contact USB flash drive (U disk) embodiment of this new utility model.

Fig. 6 is a cross-sectional view of the interface section of the exposed contact USB flash drive (U disk) embodiment of this new utility model.

Fig. 7 is a back view of the exposed contact USB flash drive (U disk) embodiment of this new utility model.

In Fig. 1, the elements are as follows: 1. USB interface front ground electrode; 2. USB interface front data electrode 1; 3. USB interface front data electrode 2; 4. USB interface front power electrode; 5. Switch.

In Fig. 2, the elements are as follows: 5. USB interface back ground electrode; 6. USB interface back data electrode 1; 7. USB interface back data electrode 2; 8. USB interface back power electrode.

In Fig. 4, the elements are as follows: 1. USB interface right ground electrode; 2. USB interface right data electrode 1; 3. USB interface right data electrode 2; 4. USB interface right power electrode; 5. USB interface left ground electrode; 6. USB interface left data electrode 1; 7. USB interface left data electrode 2; 8. USB interface left power electrode.

In Fig. 5, the elements are as follows: 1. USB interface front ground electrode; 2. USB interface front data electrode 1; 3. USB interface front data electrode 2; 4. USB interface front power electrode.

In Fig. 6, the elements are as follows: 1. USB interface front ground electrode; 2. USB interface front data electrode 1; 3. USB interface front data electrode 2; 4. USB interface front power electrode; 5. USB interface back ground electrode; 6. USB interface back data electrode 1; 7. USB interface back data electrode 2; 8. USB interface front power electrode.

In Fig. 7, the elements are as follows: 5. USB interface back ground electrode; 6. USB interface back data electrode 1; 7. USB interface back data electrode 2; 8. USB interface front power electrode.

Specific Implementation Methods

Fig. 1 and Fig. 2 depict the structure of this new utility model using exposed contact points, with a set of standard USB contact points distributed on each side of the solid interface body. In Fig. 1, the USB interface front ground electrode (1), front data electrode 1 (2), front data electrode 2 (3), and front power electrode (4) form a complete set of USB interface contacts. In Fig. 2, it can be seen that the USB interface back ground electrode (5), back data electrode 1 (6), back data electrode 2 (7), and back power electrode (8) represent another complete set of USB interface contacts. The contact points on the front and back can use all contact points or only some of them, depending on the actual application of the device. For certain specific applications, some contact points can be directly connected together, while others need to use a switch (9) to toggle.

Fig. 3 and Fig. 4 illustrate this new utility model with an internal contact point structure, where a set of standard USB contact points is distributed on each side of the hollow interface body. In Fig. 4, the USB

interface right ground electrode (1), right data electrode 1 (2), right data electrode 2 (3), and right power electrode (4) form one complete set of USB interface contacts. The USB interface left ground electrode (5), left data electrode 1 (6), left data electrode 2 (7), and left power electrode (8) form another complete set of USB interface contacts. The contact points on the right and left sides can also use all contact points or only some of them, depending on the actual application of the device. For certain specific applications, some contact points can be directly connected together, while others need to use a switch to toggle.

Fig. 5, Fig. 6, and Fig. 7 showcase the embodiment of this new utility model featuring a double-sided insertable USB flash drive with exposed interface. In Fig. 5, the front view shows the USB interface's front ground electrode (1), front data electrode 1 (2), front data electrode 2 (3), and front power electrode (4) representing a complete set of USB interface contact points. Fig. 6 provides a cross-sectional view of the USB interface, illustrating the distribution of contact points on both the front and back sides. Fig. 7 presents the back view of the USB flash drive, clearly showing the back contact points 5, 6, 7, and 8, which have a symmetrical distribution compared to the front. The internal circuit of the USB drive can be any standard USB drive circuit.

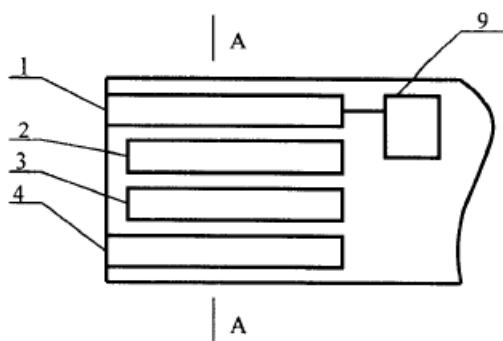


Fig. 1

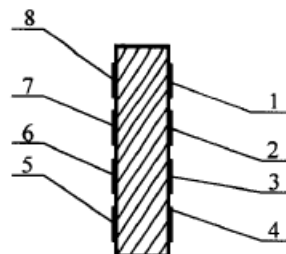


Fig. 2

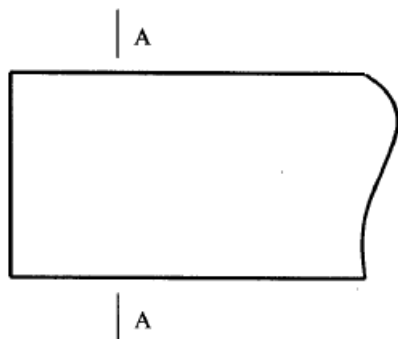
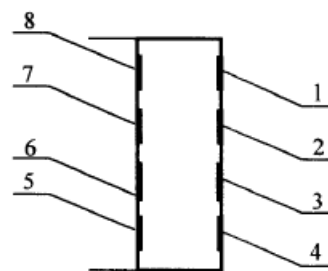


Fig. 3



A-A section

Fig. 4

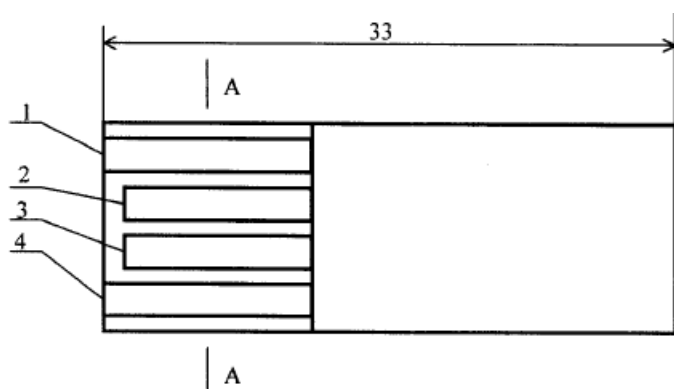
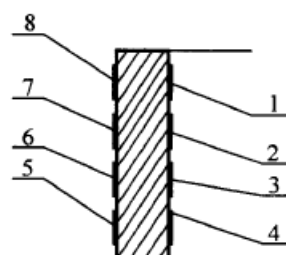


Fig. 5



A-A section

Fig. 6

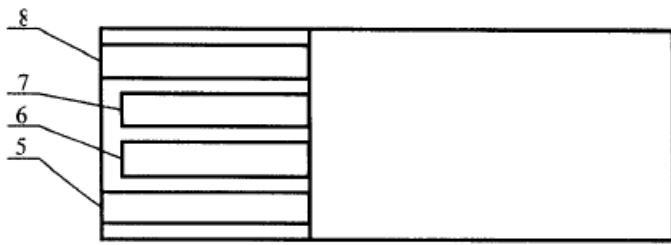


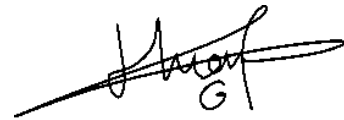
Fig. 7

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 CN201038524Y 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:

A handwritten signature in black ink, appearing to be 'Huang Gao', written over a horizontal line.

Dr. Huang Gao

[19] 中华人民共和国国家知识产权局



[12] 实用新型专利说明书

专利号 ZL 200620016890.6

[51] Int. Cl.

H01R 24/06 (2006.01)

H01R 13/40 (2006.01)

H01R 13/70 (2006.01)

[45] 授权公告日 2008 年 3 月 19 日

[11] 授权公告号 CN 201038524Y

[22] 申请日 2006.7.11

[21] 申请号 200620016890.6

[73] 专利权人 孙振宇

地址 518052 广东省深圳市南山区桃园路常兴广场西座 25F

[72] 发明人 孙振宇

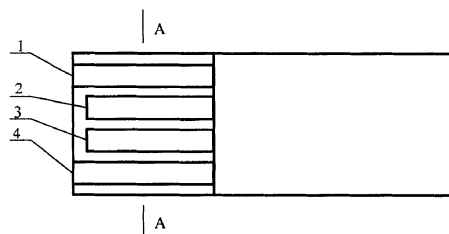
权利要求书 1 页 说明书 2 页 附图 1 页

[54] 实用新型名称

双面通用串行总线接口

[57] 摘要

一种能够正反两个方向接入计算机 USB 插座的双面通用串行总线 (USB) 接口。有两组标准 USB 接口触点, 可以不区分方向插入标准 USB 插座中。普通的 USB 接口只能一个方向插入标准 USB 插座, 而本接口由于具有两组对称触点, 因此可以不区分方向地插入 USB 插座中正常使用。本接口一种是实心结构, 外露触点, 正反每个面上具有一组标准接触点, 触点在某些应用需要通过开关后再连接到设备中。另一种截面为中空的内藏触点结构, 壳体的两个内壁各具有一组标准接触点。双面 USB 接口完全兼容标准插座, 两种结构都可以和标准 USB 插座良好结合, 使用方便, 体积小。



1. 双面通用串行总线接口，其特征是：具有两个接触面，每个面都带有一组通用串行总线接口的标准触点或部分标准触点。
2. 根据权利要求1所述的双面通用串行总线接口，其特征是：接口的一个面具有USB接口，翻转180度后有另外一个USB接口。
3. 根据权利要求1所述的双面通用串行总线接口，其特征是：每个接触面都有一组USB的触点，两组接触点是中心对称的。
4. 根据权利要求1所述的双面通用串行总线接口，其特征是：标准触点可以使用开关把两个面的触点进行隔离，防止可能出现的接触点短路。

双面通用串行总线接口

所属技术领域

本实用新型涉及一种通用串行总线（USB）接口，尤其是具有两组标准接触点的通用串行总线（USB）接口。

背景技术

目前，公知的通用串行总线接口是由一组接口接触点构成，分布在接口的一个面上，接触点与所连接的设备连接而进行通讯和取得电源供电。但是，由于公知的通用串行总线（USB）接口只有一组单面触点，在进行连接时必须分清楚连接方向，给使用带来不方便，如果插反还可能导致被连接设备不正常工作甚至损坏。

发明内容

为了克服现有的通用串行总线（USB）接口必须分清接入方向的不足，本实用新型提供一种接口，该接口不需要分方向而直接插到设备上，就可以方便的使用。

本实用新型解决其技术问题所采用的技术方案是：采用两组标准通用串型总线（USB）接口接触点，每个面上都有标准触点，这样就可以在一个方向上正常接入设备，翻转180度后也可以正常接入设备，从而使用时不需要象公知USB接口一样需要区分方向。采用外露式触点结构时，为防止部分实施情况中可能出现的短路现象，可以使用开关把两个面的触点进行隔离；也可以采用两组内藏式触点结构，利用这种结构防止可能出现的短路。这样，当正面的通用串型总线（USB）标准触点进行连接时，背面的触点和正面的连接关系是被断开的，从而任何一个面的触点进行接触的时候，另外一个面都不会和正在连接的触点短路。本实用新型可以采用的技术方案有外露触点结构，内藏触点结构等具体方式。

本实用新型的有益效果是，可以在不用区分通用串行总线（USB）接口的方向而直接进行方便的连接，并杜绝公知接口可能的反接，不但使用方便并且可以防止意外接反而导致被接入设备不正常甚至损坏，并且由于结构对称，使产品的外观设计更方便和美观。

附图说明

下面结合附图和实施例对本实用新型进一步说明。

图1是本实用新型的外露触点接口机构的接口正视图。

图2是本实用新型的外露触点接口机构的接口剖面图。

图3是本实用新型的内藏触点接口机构的接口正视图。

图4是本实用新型的内藏触点接口机构的接口剖面图。

图5是本实用新型的外露触点USB闪存盘（U盘）实施例的正面视图。

图6是本实用新型的外露触点USB闪存盘（U盘）实施例的接口部分的剖面图。

图7是本实用新型的外露触点USB闪存盘（U盘）实施例的反面视图。

图 1 中, 1. USB 接口正面地电极, 2. USB 接口正面数据电极 1, 3. USB 接口正面数据电极 2, 4. USB 接口正面电源电极, 9. 开关。

图 2 中, 5. USB 接口正面地电极, 6. USB 接口正面数据电极 1, 7. USB 接口正面数据电极 2, 8. USB 接口正面电源电极。

图 4 中, 1. USB 接口正面地电极, 2. USB 接口正面数据电极 1, 3. USB 接口正面数据电极 2, 4. USB 接口正面电源电极, 5. USB 接口正面地电极, 6. USB 接口正面数据电极 1, 7. USB 接口正面数据电极 2, 8. USB 接口正面电源电极。

图 5 中, 1. USB 接口正面地电极, 2. USB 接口正面数据电极 1, 3. USB 接口正面数据电极 2, 4. USB 接口正面电源电极。

图 6 中, 1. USB 接口正面地电极, 2. USB 接口正面数据电极 1, 3. USB 接口正面数据电极 2, 4. USB 接口正面电源电极, 5. USB 接口背面地电极, 6. USB 接口背面数据电极 1, 7. USB 接口背面数据电极 2, 8. USB 接口正面电源电极。

图 7 中, 5. USB 接口背面地电极, 6. USB 接口背面数据电极 1, 7. USB 接口背面数据电极 2, 8. USB 接口正面电源电极。

具体实施方式

图 1 和图 2 表述的是本实用新型采用外露接触点的结构, 在实心的接口体的每个面分布了一组 USB 的标准接触点, 其中图 1 中的 USB 接口正面地电极 (1), 正面数据电极 1 (2), 正面数据电极 2 (3), 正面电源电极 (4) 是一组完整的 USB 接口触点。图 2 中则可以看到 USB 接口反面地电极 (5), 反面数据电极 1 (6), 反面数据电极 2 (7), 反面电源电极 (8) 是另外一组完整的 USB 接口触点。正面和反面的触点根据实际应用的设备, 可以使用全部接触点, 也可以使用部分接触点。对于一些具体应用, 有些接触点可以直接连接在一起, 有些需要使用开关 (9) 来切换。

图 3 和图 4 表述的是本实用新型采用内藏接触点的结构, 在空心的接口体的每个面分布了一组 USB 的标准接触点, 其中图 4 中的 USB 接口右面地电极 (1), 右面数据电极 1 (2), 右面数据电极 2 (3), 右面电源电极 (4) 是一组完整的 USB 接口触点。图 4 中的 USB 接口左面地电极 (5), 左面数据电极 1 (6), 左面数据电极 2 (7), 左面电源电极 (8) 是另外一组完整的 USB 接口触点。右面和左面的触点根据实际应用的设备, 可以使用全部接触点, 也可以使用部分接触点。对于一些具体应用, 有些接触点可以直接连接在一起, 有些需要使用开关来切换。

图 5、图 6 和图 7 是本实用新型的可以双面插入的 U 盘外露接口的实施例。图 5 正面视图中, USB 接口正面地电极 (1), 正面数据电极 1 (2), 正面数据电极 2 (3), 正面电源电极 (4) 是一组完整的 USB 接口触点。图 6 的 USB 接口的剖面图中, 显示了正面和背面接触点的分布情况。图 7 是本实用新型的背面视图, 可以看到背面的接触点 5、6、7、8, 分布情况和正面是一样的, 是中点对称的。U 盘的内部电路可以是任何的 U 盘电路。

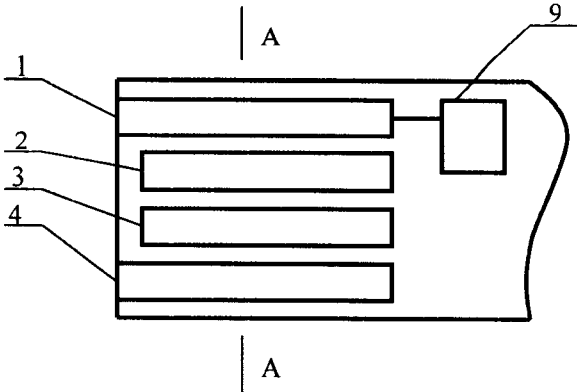


图 1

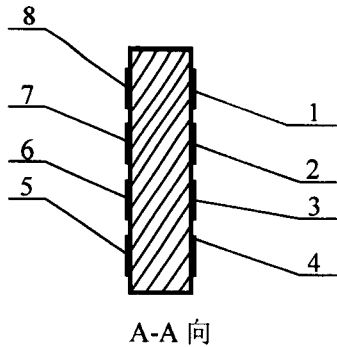


图 2

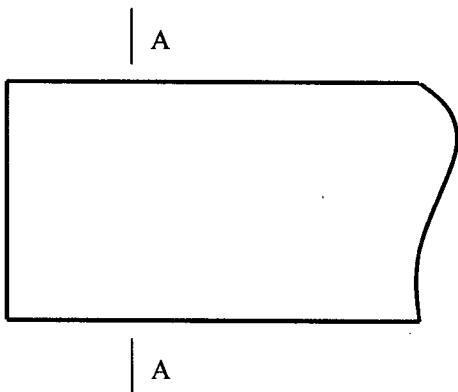


图 3

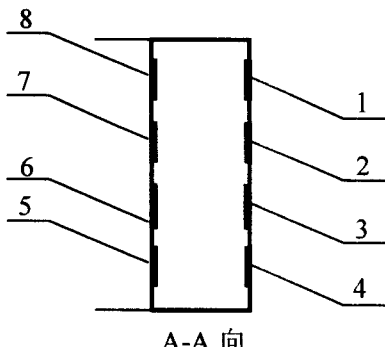


图 4

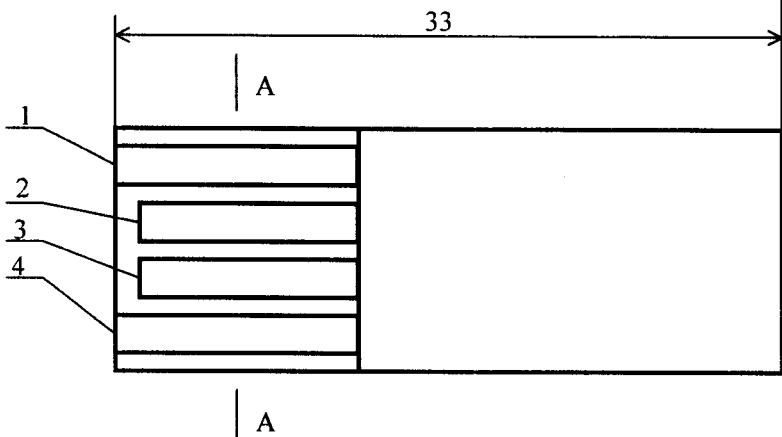


图 5

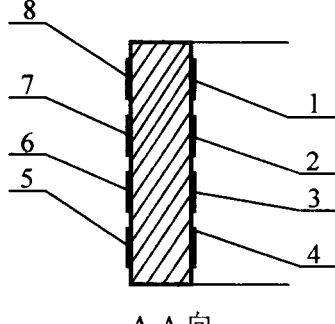


图 6

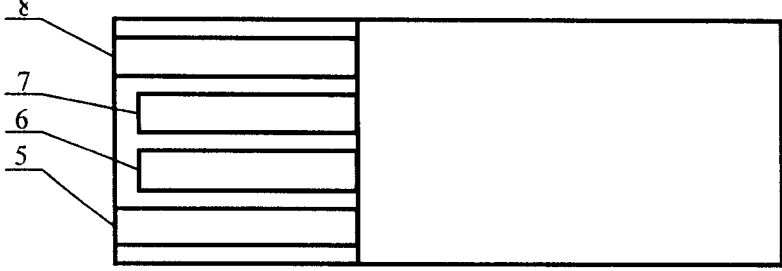


图 7