



[12] **Utility Model Patent Specification**

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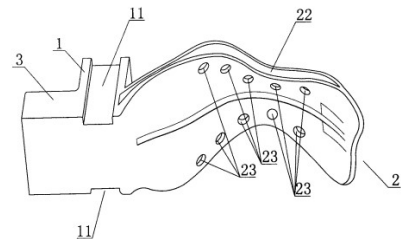
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[54] Name of Utility Model: **Oral Moisture Barrier Device**

[57] Abstract:

The present utility model discloses an oral moisture barrier device comprising an occlusal pad and a moisture barrier plate integrally connected with the occlusal pad, wherein: the moisture barrier plate is a vaguely tongue-shaped separator plate, and the upper/lower sides thereof are provided respectively with upper/lower saliva discharge grooves for discharging oral saliva; the front end of the occlusal pad is provided with a hollow connection end for a connector of a saliva discharge tube to be plugged in, and the inner side of the hollow connection end is correspondingly provided with a saliva suction hole in communication with the upper/lower saliva discharge grooves. By having the moisture barrier device worn in the patient's oral cavity, not only can it effectively have the patient's tongue placed on one side to achieve the effects of expanding treatment space and protecting the tongue and buccal mucosa of the patient, but it can also automatically suck out saliva and debris in the patient's oral cavity, thus achieving a good moisture barrier effect, ensuring the doctor's clear vision and the deceased tooth's dryness, improving the doctor's work efficiency, shortening the treatment time, reducing the pain of the patient, and helping the patient to have a favorable treatment outcome.



## Claims

### What is claimed is:

1. An oral moisture barrier device comprising an occlusal pad (1) and a moisture barrier plate (2) integrally connected with the occlusal pad (1), wherein: the moisture barrier plate (2) is a vaguely tongue-shaped separator plate, and the upper/lower sides thereof are provided respectively with upper/lower saliva discharge grooves (21, 22) for discharging oral saliva; the front end of the occlusal pad (1) is provided with a hollow connection end (3) for a connector of a saliva discharge tube to be plugged in, and the inner side of the hollow connection end (3) is correspondingly provided with a saliva suction hole (31) in communication with the upper/lower saliva discharge grooves (21, 22).

2. The oral moisture barrier device according to claim 1, characterized in that the inner sidewall of the moisture barrier plate (2) located at the positions of the upper/lower saliva discharge grooves (21) is provided with a plurality of saliva discharge holes (23) in communication with the upper/lower saliva discharge grooves (21, 22).

3. The oral moisture barrier device according to claim 1, characterized in that the upper/lower sides of the occlusal pad (1) are provided respectively with an occlusal groove (11) for the upper/lower dentitions of the human to occlude.

4. The oral moisture barrier device according to claim 1, characterized in that a side of the occlusal pad (1) is provided with a cavity slot (12) which effectively increases the elasticity of the occlusal pad (1), and the outer walls corresponding to both sides of the cavity slot (12) are provided with an indentation (13) respectively.

5. The oral moisture barrier device according to claim 1, 2, 3 or 4, characterized in that the occlusal pad (1) and the moisture barrier plate (2) are made of a transparent soft material.

6. The oral moisture barrier device according to claim 5, characterized in that the inner cavity

of the hollow connection end (3) is provided with a light source connection hole (32) to facilitate connection to a light source.

# Description

## Oral Moisture Barrier Device

### TECHNICAL FIELD

The present utility model relates to a dental treatment device and, in particular, to an oral moisture barrier device.

### BACKGROUND

At present, when treating patients' diseased teeth, dentists generally place cotton balls on two sides of the diseased tooth to achieve the purposes of absorbing saliva and removing moisture. And when necessary, they also need to use a mouth prop to hold a dental patient's mouth open in order to expand the treatment space. However, this moisture-proof treatment method currently has the following disadvantages: firstly, the tongue cannot be separated, thus causing the impossibility of proper moisture proofing for the diseased tooth and affecting treatment effectiveness; secondly, during the treatment process, the patient needs to repeatedly spit out oral discharge and rinse his mouth, thus requiring the dentist to repeatedly use cotton balls to absorb moisture for the patient's diseased tooth, which not only greatly affects treatment effectiveness on the diseased tooth, but also hugely reduces the dentist's work efficiency, prolongs treatment time, and increases the patient's pain; thirdly, it is poor in safety and prone to causing injuries to the tongue and the buccal mucosa; fourthly, prolonged use of the mouth prop is prone to causing fatigue in the patient's oral cavity and increasing the patient's pain. Chinese Patent ZL02222799.7 discloses an "Oral Moisture-proofing Device" primarily comprising a moisture-proofing card, a cheek support piece sheathed on the handle of the moisture-proofing card, a moisture-proofing fork connected to the handle of the moisture-proofing card, and compressive leaf springs arranged on the moisture-proofing fork. Since the moisture-proofing device with this structure does not have saliva discharge function, the patient has to take it off repeatedly to spit out oral discharge and rinse his mouth during treatment; and since its structure is too complex, it is also very inconvenient for the patient to wear it. As a

result, most patients and doctors are unwilling to use it.

## **SUMMARY OF THE UTILITY MODEL**

An object of the present utility model is to solve the abovementioned problems by providing an oral moisture barrier device that can effectively protect the tongue and buccal mucosa of the patient, has good separation and moisture barrier effects, and is comfortable and convenient to wear, compact in size, structurally simple, and low in production cost.

On this basis, a further object of the present utility model is to provide an oral moisture barrier device with a good oral illumination effect.

The technical solution of the present utility model is achieved as follows:

An oral moisture barrier device comprising an occlusal pad and a moisture barrier plate integrally connected with the occlusal pad, wherein: the moisture barrier plate is a vaguely tongue-shaped separator plate, and the upper/lower sides thereof are provided respectively with upper/lower saliva discharge grooves for discharging oral saliva; the front end of the occlusal pad is provided with a hollow connection end for a connector of a saliva discharge tube to be plugged in, and the inner side of the hollow connection end is correspondingly provided with a saliva suction hole in communication with the upper/lower saliva discharge grooves.

In order to further improve the saliva discharge and moisture barrier effects of the present utility model, the inner sidewall of the moisture barrier plate located at the positions of the upper/lower saliva discharge grooves is provided with a plurality of saliva discharge holes in communication with the upper/lower saliva discharge grooves.

In order to further improve the wearing comfort and convenience of the present utility model, the upper/lower sides of the occlusal pad are provided respectively with an occlusal groove for the upper/lower dentitions of the human to occlude.

In order to ensure that the present utility model has a good oral illumination effect, the occlusal pad and the moisture barrier plate are made of a transparent soft material, and the inner cavity of the hollow connection end of the occlusal pad is provided with a light source connection hole for connection to a light source. With the present utility model having its light source connection hole connected to a cold light illuminator (e.g. a halogen lamp cold light illuminator) through a

connecting tube, a shadowless lighting effect can be achieved in the patient's oral cavity. Thus, it can effectively ensure that the light is not obstructed by the operating instruments in the doctor's hand, thereby ensuring the doctor's clear vision and reducing eye fatigue, so as to achieve the goals of further helping the doctor to improve work efficiency, helping patients to have a favorable treatment outcome, and preventing the occurrence of medical accidents.

The present utility model adopts a moisture barrier device comprising an occlusal pad provided respectively with a saliva suction hole and saliva discharge grooves, and a moisture barrier plate integrally connected with the occlusal pad, so that by having the moisture barrier device worn in the patient's oral cavity and connecting the saliva suction hole with the saliva discharge interface on the comprehensive treatment unit through a connecting tube, not only can it effectively have the patient's tongue placed on one side to achieve the effects of expanding treatment space and protecting the tongue and buccal mucosa of the patient, but it can also automatically suck out saliva and debris in the patient's oral cavity. In this way, it achieves a good moisture barrier effect, ensures the doctor's clear vision and the deceased tooth's dryness, improves the doctor's work efficiency, shortens the treatment time, reduces the pain of the patient, and helps the patient to have a favorable treatment outcome; it can also prevent water, liquid medicine, debris and fillings from being accidentally swallowed, thereby ensuring the safety of the treatment process. It also has the advantages of wearing comfort and convenience, compact size, structural simplicity and low production cost. Moreover, since it adopts a structure where the occlusal pad and moisture barrier plate are made of a transparent soft material, and the occlusal pad is provided with a light source connection hole that facilitates connection to a light source. With the present utility model having its light source connection hole connected to a cold light illuminator (e.g. a halogen lamp cold light illuminator) through a connecting tube, a shadowless lighting effect can be achieved in the patient's oral cavity. Thus, it can effectively ensure that the light is not obstructed by the operating instruments in the doctor's hand, thereby ensuring the doctor's clear vision and reducing eye fatigue, so as to achieve the effects of further helping the doctor to improve work efficiency, helping patients to have a favorable treatment outcome, and preventing the occurrence of medical accidents.

The present utility model will be further described below with reference to the accompanying drawings.

## **BRIEF DESCRIPTION OF THE DRAWINGS**

Figure 1 is a structural schematic view of the present utility model.

Figure 2 is a stereoscopic structural schematic view of the present utility model from another perspective.

## **DETAILED DESCRIPTION**

As shown in Figures 1 and 2, the present utility model comprises an occlusal pad 1 and a moisture barrier plate 2 integrally connected with the occlusal pad 1, wherein: the moisture barrier plate 2 is a vaguely tongue-shaped separator plate, and the upper/lower sides thereof are provided respectively with upper/lower saliva discharge grooves 21, 22 for discharging oral saliva; the front end of the occlusal pad 1 is provided with a hollow connection end 3 for a connector of a saliva discharge tube to be plugged in, and the inner side of the hollow connection end 3 is correspondingly provided with a saliva suction hole 31 in communication with the upper/lower saliva discharge grooves 21, 22. In this way, by having the present utility model worn in the patient's oral cavity, and by inserting a plug connector 5 of a connecting tube 4 into the hollow connection end 3 to have the saliva suction hole 31 connected with the saliva discharge interface on the comprehensive treatment unit through the connecting tube 4, not only can it effectively have the patient's tongue placed on one side to achieve the effects of expanding treatment space and protecting the tongue and buccal mucosa of the patient, but it can also automatically suck out saliva and debris in the patient's oral cavity. Thus, it achieves a good moisture barrier effect, ensures the doctor's clear vision and the deceased tooth's dryness, improves the doctor's work efficiency, shortens the treatment time, reduces the pain of the patient, and helps the patient to have a favorable treatment outcome; it can also prevent water, liquid medicine, debris and fillings from being accidentally swallowed, thereby ensuring the safety of the treatment process. It also has the advantages of wearing comfort and convenience, compact size, structural simplicity and low production cost. In order to further improve the saliva discharge and moisture barrier effects of the present utility model, the inner sidewall of the moisture barrier plate 2 located at the positions of the upper/lower saliva discharge grooves 21 is provided with a plurality of saliva discharge holes 23 in communication with the upper/lower saliva discharge grooves 21, 22. In order to further improve the wearing comfort and convenience of the present utility model, the upper/lower sides of the

occlusal pad 1 are provided respectively with an occlusal groove 11 for the upper/lower dentitions of the human to occlude. Moreover, a side of the occlusal pad 1 is provided with a cavity slot 12 which effectively increases the elasticity of the occlusal pad 1, and the outer walls corresponding to both sides of the cavity slot 12 are provided with an indentation 13 respectively. In this way, not only can it effectively increase the elasticity and wearing comfort of the present utility model, but it can also achieve the goals of saving processing materials and reducing production costs. In order to ensure that the present utility model has a good oral illumination effect, the occlusal pad 1 and the moisture barrier plate 2 are made of a transparent soft material, and the inner cavity of the hollow connection end 3 of the occlusal pad is provided with a light source connection hole 32 to facilitate connection to a light source. With the present utility model having its light source connection hole 32 connected to a cold light illuminator (e.g. a halogen lamp cold light illuminator) through a connecting tube 6, a shadowless lighting effect can be achieved in the patient's oral cavity. Thus, it can effectively ensure that the light is not obstructed by the operating instruments in the doctor's hand, thereby ensuring the doctor's clear vision and reducing eye fatigue, so as to achieve the effects of further helping the doctor to improve work efficiency, helping patients to have a favorable treatment outcome, and preventing the occurrence of medical accidents.

# Drawings

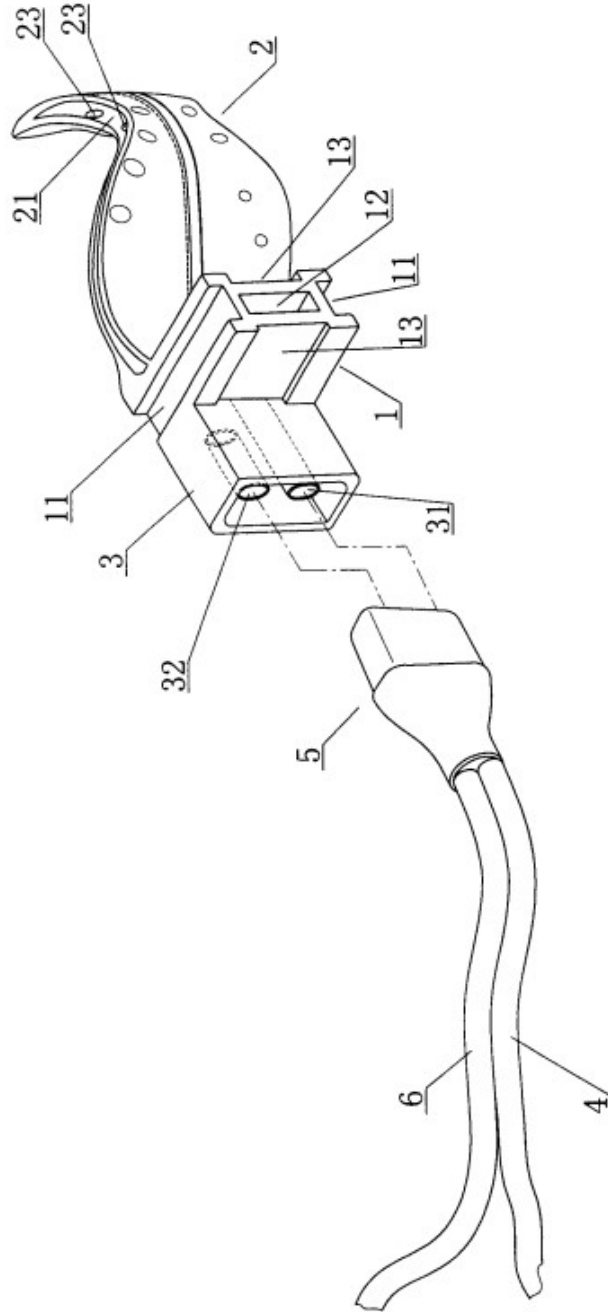
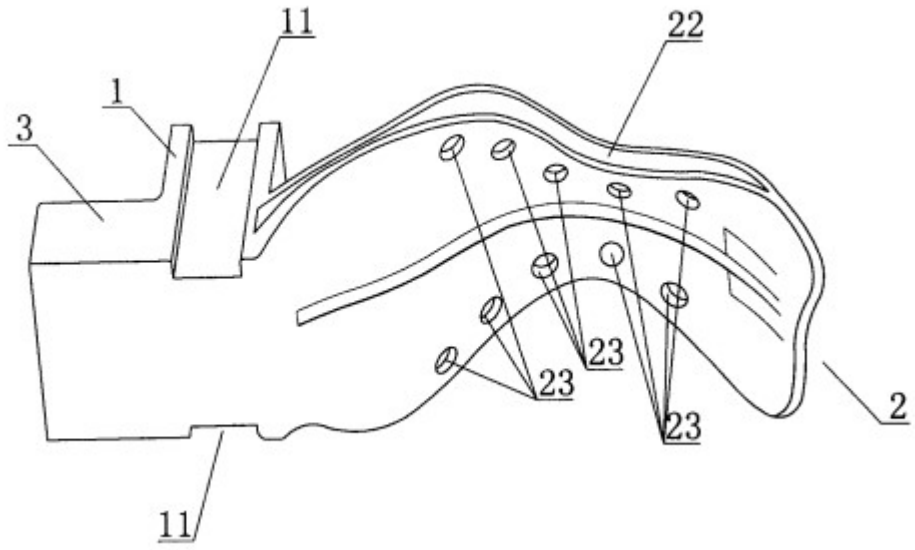


Figure 1



**Figure 2**



# [12] 实用新型专利说明书

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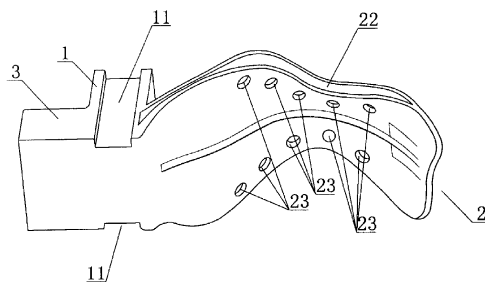
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权利要求书 1 页 说明书 4 页 附图 2 页

[54] 实用新型名称 一种口腔隔湿器

[57] 摘要

一种口腔隔湿器。本实用新型包括咬合垫及与咬合垫连为一体的隔湿片，其中，所述隔湿片为略呈舌头状的隔离片，且其上、下侧面分别设有用于排出口内唾液的上、下排唾槽，上述咬合垫的前端设有可供排唾管的连接头插接的中空连接端，且该中空连接端的内相对应地设有与上、下排唾槽相连通的吸唾孔。从而通过将本实用新型配戴于患者的口腔中，不仅能将患者的舌头隔置一侧，起到扩大治疗空间和保护患者的舌头和颊部粘膜的功效，而且还实现将患者口腔内的唾液及碎渣自动吸出，达到良好的隔湿效果、保证医生视野的清晰和病牙的干燥，提高医生工作效率、缩短治疗时间，减少患者的痛苦，帮助患者获得良好治疗效果的功效。



1、一种口腔隔湿器，其特征在于包括咬合垫（1）及与咬合垫（1）连为一体的隔湿片（2），其中，所述隔湿片（2）为略呈舌头状的隔离片，且其上、下侧面分别设有用于排出口内唾液的上、下排唾槽（21、22），上述咬合垫（1）的前端设有可供排唾管的连接头插接的中空连接端（3），且该中空连接端（3）的内相对应地设有与上、下排唾槽（21、22）相连通的吸唾孔（31）。

2、根据权利要求1所述口腔隔湿器，其特征在于上述隔湿片（2）上位于上、下排唾槽（21）位置的内侧壁分别设有与上、下排唾槽（21、22）相连通的若干个排唾孔（23）。

3、根据权利要求1所述口腔隔湿器，其特征在于上述咬合垫（1）的上、下侧面分别设有可供人体的上、下牙列咬合的咬合槽（11）。

4、根据权利要求1所述口腔隔湿器，其特征在于上述咬合垫（1）的侧面设有起到有效增加咬合垫（1）的弹性的腔槽（12），且对应于该腔槽（12）的两侧外壁分别设有凹槽（13）。

5、根据权利要求1或2或3或4所述口腔隔湿器，其特征在于上述咬合垫（1）及隔湿片（2）由透明的软质材质加工制造而成。

6、根据权利要求5所述口腔隔湿器，其特征在于上述中空连接端（3）的内腔还设有可方便连接光源的光源连接孔（32）。

## 一种口腔隔湿器

### 技术领域

本实用新型涉及一种牙科医疗器件，特别是一种口腔隔湿器。

### 背景技术

目前，牙科医生在对患者的病牙进行治疗时，一般都会使用棉球塞在被治病牙的两侧，以达到吸唾排湿的目的。并且在必要时还需用开口器将嘴撑开，以达到扩展治疗所需的空间。然而，目前这种隔湿治疗方式存在着如下缺点：一是不能将舌头隔开，使病牙不能达到很好防湿，影响治疗效果；二是患者在接受治疗过程中，须反复吐污液和嗽口，使得医生必须反复使用棉球为患者的病牙吸湿，不仅大大影响病牙的治疗效果，而且大大降低医生的工作效率，延长治疗时间，增加了患者的痛苦；三是安全性差、容易伤及舌头和颊部粘膜；四是长时间使用开口器，易使患者的口腔产生疲劳，增加了患者的痛苦。中国专利 ZL02222799.7 公开了一种“口腔防湿器”，该防湿器主要由防湿卡及套在防湿卡柄部的托腮块以及连接于防湿卡的柄上防湿叉和设置于防湿叉上的压簧片组成。这种结构的防湿器由于不具备排唾的功能，使得患者在配戴其接受治疗过程中，必须反复取下来吐污液和嗽口；并且由于其构造过于复杂，使得患者配戴起来也十分不方便。从而造成大多数患者和医生都不愿意使用。

### 发明内容

本实用新型的目的在于解决上述存在问题，提供一种可有效地保护患者的舌头和颊部粘膜及隔离、隔湿效果好，且配戴舒适、配戴方便、体积小巧、

结构简单、生产成本低的口腔隔湿器。

在此基础上，本实用新型进一步的目的在于提供一种具有良好口腔照明效果的口腔隔湿器。

本实用新型的技术方案是这样实现的：

一种口腔隔湿器，其特点在于包括咬合垫及与咬合垫连为一体的隔湿片，其中，所述隔湿片为略呈舌头状的隔离片，且其上、下侧面分别设有用于排出口内唾液的上、下排唾槽，上述咬合垫的前端设有可供排唾管的连接头插接的中空连接端，且该中空连接端的内相对应地设有与上、下排唾槽相连通的吸唾孔。

为了进一步地提高本实用新型的排唾、隔湿效果，上述隔湿片上位于上、下排唾槽位置的内侧壁分别设有与上、下排唾槽相连通的若干个排唾孔。

为了进一步提高本实用新型配戴舒适性和方便性，上述咬合垫的上、下侧面分别设有可供人体的上、下牙列咬合的咬合槽。

为使本实用新型具有良好口腔照明效果，上述咬合垫及隔湿片由透明的软质材质加工制造而成，且该咬合垫的中空连接端内腔还设有用于连接光源的光源连接孔。使本实用新型通过连接管将光源连接孔与照明冷光源（如：卤素灯冷光源）相连接，即可实现在患者的口腔内形成无影灯光照明效果。从而可有效地确保光线不会被医生手中的操作器械遮挡，保证其视野清晰，减少眼睛疲劳，达到进一步地帮助医生提高工作效率、帮助患者获得良好的治疗效果及避免医疗事故的发生的目的。

本实用新型由于采用分别设置有吸唾孔及排唾槽的咬合垫及与咬合垫连为一体的隔湿片组成的隔湿件，从而通过将隔湿件配戴于患者的口腔中，并通过连接管将吸唾孔与综合治疗台上的排唾接口相连接，不仅能有效地将患

者的舌头隔置一侧,起到扩大治疗空间和保护患者的舌头和颊部粘膜的功效,而且还可实现将患者口腔内的唾液及碎渣自动吸出,既达到良好的隔湿效果、保证医生视野的清晰和病牙的干燥,提高医生工作效率、缩短治疗时间,减少患者的痛苦,帮助患者获得良好治疗效果的功效;又可防止水、药液、碎渣及充填物被误吞,确保治疗过程的安全性。并且还具有配戴舒适、配戴方便,体积小、结构简单、生产成本低的优点。同时,由于还采用由透明的软质材质加工制造而成的咬合垫及隔湿片以及在咬合垫设有可方便连接光源的光源连接孔的结构,使本实用新型通过连接管将光源连接孔与照明冷光源(如:卤素灯冷光源)相连接,即可实现在患者的口腔内形成无影灯光照明效果。从而可有效确保光线不会被医生手中的操作器械遮挡,保证其视野清晰,减少眼睛疲劳,达到进一步地帮助医生提高工作效率、帮助患者获得良好的治疗效果及避免医疗事故的发生的效果。

下面结合附图对本实用新型作进一步的说明。

#### 附图说明

图1为本实用新型的结构示意图。

图2为本实用新型另一视角方向的立体结构示意图。

#### 具体实施方式

如图1及图2所示,本实用新型包括咬合垫1及与咬合垫1连为一体的隔湿片2,其中,所述隔湿片2为略呈舌头状的隔离片,且其上、下侧面分别设有用于排出口内唾液的上、下排唾槽21、22,所述咬合垫1的前端设有可供排唾管的连接头插接的中空连接端3,且该中空连接端3的内相对应地设有与上、下排唾槽21、22相连通的吸唾孔31。这样,通过将本实用新型配戴于患者的口腔中,并通过将连接管4的插接头5插接在中空连接端3中,

使吸唾孔 31 通过连接管 4 与综合治疗台上的排唾接口相连接,从而不仅能有效地将患者的舌头隔置一侧,起到扩大治疗空间和保护患者的舌头和颊部粘膜的功效,而且还可实现将患者口腔内的唾液及碎渣自动吸出,既达到良好的隔湿效果、保证医生视野的清晰和病牙的干燥,提高医生工作效率、缩短治疗时间,减少患者的痛苦,帮助患者获得良好治疗效果的功效;又可防止水、药液、碎渣及充填物被误吞,确保治疗过程的安全性。并且还具有配戴舒适、配戴方便,体积小巧、结构简单、生产成本低的优点。为了进一步地提高本实新型的排唾、隔湿效果,所述隔湿片 2 上位于上、下排唾槽 21 位置的内侧壁分别设有与上、下排唾槽 21、22 相连通的若干个排唾孔 23。为了进一步提高本实用新型配戴舒适性和方便性,所述咬合垫 1 的上、下侧面分别设有可供人体的上、下牙列咬合的咬合槽 11。同时,所述咬合垫 1 的侧面设有起到有效增加咬合垫 1 的弹性的腔槽 12,且对应于该腔槽 12 的两侧外壁分别设有凹槽 13。这样,不仅能有效增加本实用新型的弹性和配戴的舒适性,而且还可达到节省加工材料、降低生产成本的目的。为使本实用新型具有良好口腔照明效果,所述咬合垫 1 及隔湿片 2 由透明的软质材质加工制造而成,且所述咬合垫的中空连接端 3 的内腔还设有可方便连接光源的光源连接孔 32。使本实用新型通过连接管 6 将光源连接孔 32 与照明冷光源(如:卤素灯冷光源)相连接,即可实现在患者的口腔内形成无影灯光照明效果。从而可有效确保光线不会被医生手中的操作器械遮挡,保证其视野清晰,减少眼睛疲劳,达到进一步地帮助医生提高工作效率、帮助患者获得良好的治疗效果及避免医疗事故的发生的效果。

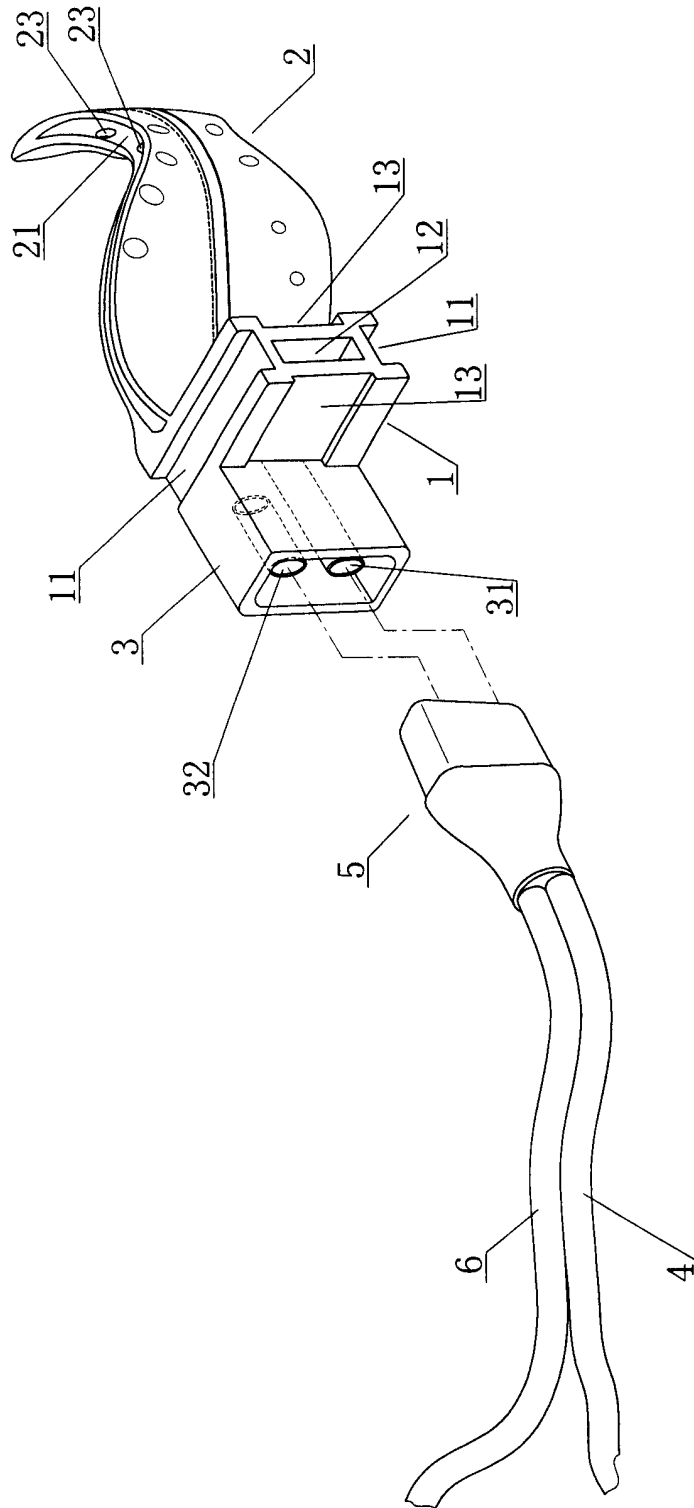


图 1

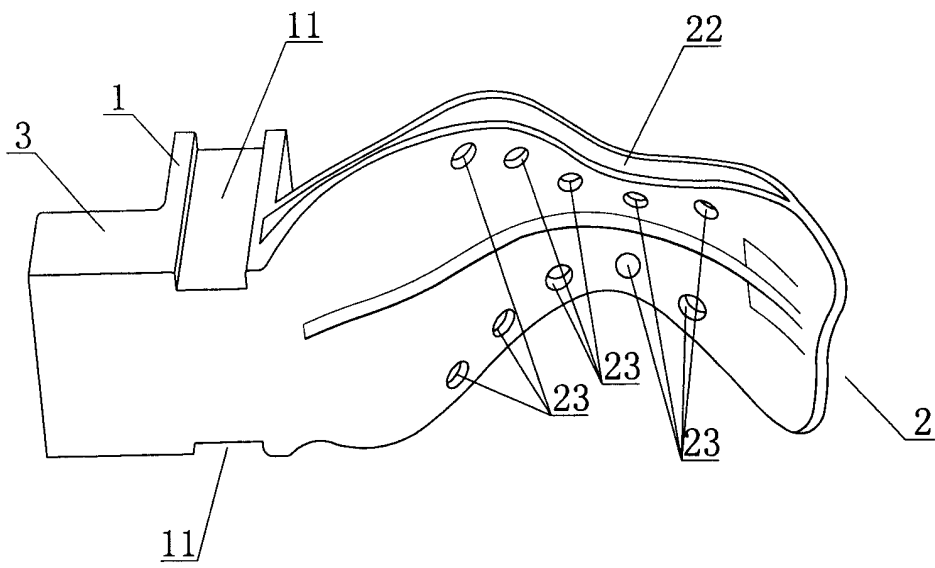


图 2



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## Certification

This is to certify that the foregoing translation of the patent document CN2748045Y was made from Chinese to English from the document by a competent translator well acquainted with both languages, and that, to the best of our knowledge and belief, it is a true and complete rendering into English of the selected text.

Date: May 28, 2025

A handwritten signature in black ink, appearing to read 'D. Hanley', is written over a solid horizontal line.

Donald W. Hanley, CEO