

DESCRIPTION

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The invention relates to an oral hygiene device having a mouth douche, which has a water pump driven by an electric motor. Of late, such oral hygiene devices have become generally known and are already found in numerous households.

The known oral hygiene devices require an electric mains connection for the operation thereof. However, there are countries in which the installation of plugs in bathrooms is not allowed for safety reasons. Electrically driven mouth douches cannot then be used in the bathroom.

The problem of the present invention is to develop an oral hygiene device of the aforementioned type, in such a way that the mouth douche requires no electric mains connection at the place of use.

According to the invention this problem is solved by the measures given in claim 1.

The invention makes it possible to connect the separate component with the motor to the electric mains located outside the bathroom, so that batteries located therein can be charged. When using the mouth douche, the separate component is taken along, the motor coupled to the water pump and then the mouth douche can be used. Therefore the mouth douche requires no mains connection in the bathroom. This avoids the accident risk due to electric power, which has hitherto existed with oral hygiene devices. Especially in bathrooms electrical appliances containing water which is delivered at a relatively high pressure, represent a considerable

danger hazard in the case of a fault.

Advantageously an electric toothbrush, whose drive journal can be inserted in the coupling piece is used as a separate component.

This surprisingly simple design according to the invention offers numerous advantages. It is firstly pointed out that through the elimination of the drive unit for the mouth douche water pump, the oral hygiene can be manufactured much more cheaply than the known oral hygiene devices, which in each case have a drive unit for the toothbrush and also for the mouth douche. This simplification and reduction in price of the oral hygiene device does not lead to functional disadvantages compared with known oral hygiene devices and on the contrary the economizing of a drive unit leads to significant advantages. It is firstly pointed out that the oral hygiene device according to the invention only requires one power cable and therefore only one socket. This is often very important, because bathrooms normally only have one socket. In countries where for safety reasons sockets are prohibited in bathrooms, the invention makes it possible to install the charging means for the toothbrush outside the bathroom, whereas the mouth douche is located in the bathroom. A user of the oral hygiene device can then take the electric toothbrush from the charging means into the bathroom and insert it in the coupling piece in order to obtain a functionally efficient mouth douche.

An advantageous development of the invention is defined in claim 3. The electric toothbrush only has to be placed upside down in the

toothbrush socket, so that its drive journal engages in the coupling piece and is thereby coupled to the water pump. The mouth douche can then be switched on by the in any case present toothbrush switch.

As a result of the advantageous development of the invention given in claim 4, the toothbrush can be stored in the socket in an upright position which is favourable for its use and charging. When using the mouth douche, it only has to be removed from this socket and inserted upside down in the juxtaposed toothbrush socket. It would naturally also be possible to construct the toothbrush socket in such a way that the toothbrush can be inserted therein both in the upright and in the upside down position. For example, the upright position can then be used for charging the toothbrush, whilst in the upside down position the drive journal engages in the coupling piece.

As a result of the inventive construction given in claim 5, a possibility exists of supplementing an already existing electric toothbrush by a mouth douche, so that an oral hygiene centre is obtained, without any further power cable being required.

The invention permits numerous constructional variants, two of which are shown in the drawings and are described hereinafter relative to the drawings, wherein show:

Fig. 1 A view from the side of a first embodiment of the invention.

Fig. 2 A view from the side of a second embodiment of the invention.

Fig. 1 shows a base 1 for an oral hygiene device. In the drawing, alongside the left-hand side, base 1 has a socket 2, in which an electric toothbrush 3 is vertically arranged. Toothbrush 3 has a drive journal 4 which, when driven by a motor, is able to perform a reciprocating movement and onto which not shown bristle carriers are engaged for cleaning the teeth. Toothbrush 3 is switched on by a switch 5 located thereon.

Toothbrush 3 can be a toothbrush with direct mains connection, with a power supply via a transformer, a toothbrush equipped with dry batteries or a toothbrush with chargeable batteries. In the latter case the socket 2 must be constructed in such a way that the toothbrush 3 automatically charges when placed in the said socket 2.

Alongside socket 2 in base 1 is provided a toothbrush socket 6, into which the toothbrush 3 can be inserted upside down, as indicated by broken lines. Its drive journal 4 then projects into a coupling piece 7 below the toothbrush socket 6. Coupling piece 7 is connected via a connecting rod 8 to a water pump 9 in base 1. Above water pump 9 is located on base 1 a water container 10 from which, when water pump 9 is working water flows to a hand-held applicator 11 and is discharged therefrom through a not shown nozzle.

The design of coupling piece 7 and connecting rod 8 is dependent on the type of toothbrush 3 and water pump 9. If water pump 9 is a piston pump and the drive journal of toothbrush 3 performs

a pendulating movement in operation, then the coupling piece 7 need only be a component with a single hole, into which can be inserted the drive journal 4. In such a case, the connecting rod 8 merely has to transfer the reciprocating movement to the piston of water pump 9. If water pump 9 is a rotary pump, the reciprocating movement of drive journal 4 of toothbrush 3 must naturally firstly be converted into a rotary movement, which can take place by means of a pawl and ratchet system. When using a toothbrush which rotates, it is conversely obviously necessary to initially convert the rotary movement into a reciprocating movement. In toothbrushes where the drive journal rotates and is simultaneously longitudinally displaced, the coupling piece must also be displaceable, which does not provide any difficulty for the Expert.

The embodiment according to fig. 2 differs from that of fig. 1 in that the oral hygiene device comprises two separate bases 1a, 1b.

Base 1a contains the socket 2 for toothbrush 3. This base 1a has a power cable 12 with a plug 13. In the case of base 1a with toothbrush 3, it can be a completely conventional toothbrush unit.

Apart from the fact that the socket 2 with toothbrush 3 is missing, base 1b can be constructed in exactly the same way as base 1 according to fig. 1. It once again has a toothbrush circuit 6, into which the toothbrush 3 can be inserted upside down so that, as in the embodiment according to fig. 1, it can be coupled via coupling piece 7 and connecting rod 8 to the water pump 9.