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(54) ORAL HYGIENE APPARATUS

(71) We, LES PRODUITS ASSOCIES LPA S.A., a Swiss Body Corporate, of 39, rue Peillonex-1225 CHENE BOURG, Switzerland, do hereby declare the invention, for which we pray that a Patent may be granted to us, and the method by which it is to be performed to be particularly described in and by the following statement:—

This invention relates to apparatus for personal hygiene, particularly though not exclusively oral hygiene apparatus.

There are commercially available liquid-treatment apparatus for body care, and particularly for bucco-dental hygiene. Such apparatus generally includes a casing enclosing a hydraulic pump connected by a flexible tubing to a handpiece having a spray head, and a reservoir removably fitted on the casing for supplying liquid to the pump. This type of apparatus providing a pulsed jet of liquid is efficient both for cleaning the teeth and flushing out particles stuck between the teeth, as well as for massaging the gums and stimulating blood circulation therein. In some "combined" apparatus, the spray nozzle can be replaced by a toothbrush which is oscillated by a hydraulic motor housed in the handpiece. In both of these types of devices, the reservoir is removably connected to the pump inlet by a suitable valve to supply water to the pump independently of the water supply. In certain types of apparatus the reservoir is formed by a removable cover which is reversible to receive the water and to connect with the pump to provide the water supply. Other alternative forms include a reservoir with a gripping handle and a pivoted lid with the reservoir resting on a lateral projection on the casing and being of suitable shape and dimensions to complete the geometrical configuration of the casing. The content of such a reservoir may be from $\frac{1}{4}$ litre to 1 litre of water, which is sufficient for the buccal treatment in question, and makes handling easy, even for children.

It has also been proposed to use dentifrice rinses for prophylactic purposes and prevention of dental plaque, this becoming ever increasingly necessary in view of the fact that 98% of the population suffers from dental decay and more than 90% of persons in the over 40 age group suffer from periodontal disease despite all of the dental hygiene measures taken to date.

Long research and practical experience have shown that chlorhexidine solutions are the most efficient products for this purpose. Tests have shown that concentrations slightly less than 0.2% of chlorhexidine gluconate can substantially delay the formation of dental plaques, and in particular a concentration of 0.025 to 0.05% is sufficient to obtain an excellent hygiene. The distribution of chlorhexidine to the different parts of the teeth and the consequent prevention of the formation of dental plaque may also be improved by use of an oral irrigation device. Further, it has been observed that the coloring effect which may occur because of the presence of chlorhexidine is considerably reduced if large volumes of low-concentration liquid are also used. Tests have shown that 700 ml of 0.1% chlorhexidine solution does not produce any more coloration than a neutral liquid whereas 20 ml of a 0.2% solution produces an apparent coloration.

To achieve perfect mouth hygiene it would thus be necessary to use the two aforesaid means in turn, i.e. on the one hand, cleaning the teeth and massaging the gums by an apparatus of the described type, and on the other hand rinsing with a dentifrice solution. However, to achieve such complete hygiene would require several time-consuming operations. People, usually in a hurry, in general sacrifice relatively little time for body care and in particular buccal hygiene, to the detriment of their health and prophylaxis. In fact, experience has demonstrated that it is unrealistic to expect people to carry out such successive operations regularly.

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It is an object of the present invention to provide apparatus for personal hygiene which is capable of efficient bucco-dental treatment and prophylaxis while simplifying the overall treatment without increasing the time.

According to the present invention, there is provided apparatus for personal hygiene, comprising a casing, a reservoir removably fitted to the casing and containing a supply of liquid in use, and a dispenser containing a hygienic, cosmetic or therapeutic product, the dispenser being configured so that it can be detachably engaged with the casing or the reservoir at a predetermined location in which the dispenser can be operated to dispense an amount of said product into the reservoir as an additive to the liquid contained in the latter at least while the reservoir is fitted to the casing.

Most preferably, the dispenser is designed as a unit which can be replaced by a fresh one, when the hygienic, cosmetic or therapeutic product therein is exhausted.

Embodiments of the present invention will now be described by way of example, with reference to the accompanying drawings, in which:—

Fig. 1 is an exploded perspective view of a first embodiment of oral hygiene apparatus according to the present invention, with a reservoir removed from a casing thereof;

Fig. 2 is a perspective view of the apparatus shown in Figure 1 with the reservoir fitted in place on the casing;

Fig. 3A is a plan view of the apparatus shown in Figures 1 and 2;

Fig. 3B is a fragmentary section taken along the line 3-3 in Figure 2, with a lid of the reservoir shown in an open position;

Fig. 4 is plan view of a second embodiment of oral hygiene apparatus according to the present invention;

Fig. 5 is a fragmentary sectional side view of the apparatus shown in Figure 4;

Figs. 6 and 7 are cross-sectional side views of a first form of dispenser, shown in rest and discharge positions respectively;

Figs. 8 and 9 are cross-sectional side views of a second form of dispenser, again shown in rest and discharging positions respectively;

Fig. 10 is a plan view of a third embodiment of oral hygiene apparatus according to the present invention;

Fig. 11 is a fragmentary section taken along the line 11-11 in Figure 10;

Fig. 12 is a fragmentary sectional side view of a fourth embodiment of oral hygiene apparatus according to the present invention;

Fig. 13 is a fragmentary sectional side view of a fifth embodiment of oral hygiene apparatus according to the present invention;

Fig. 14 is a fragmentary sectional side view of a sixth embodiment of oral hygiene apparatus according to the present invention, shown operating means of a dispenser thereof in a rest position;

Fig. 15 is a similar view to Figure 14, but showing the dispenser operating means in a position for dispensing fluid;

Figs. 16 and 17 are fragmentary sectional side views of a seventh embodiment of oral hygiene apparatus according to the present invention;

Figs. 18 and 19 are fragmentary sectional side views of an eighth embodiment of oral hygiene apparatus according to the present invention, showing a lid of a reservoir in open and closed positions respectively;

Fig. 20 is a fragmentary sectional side view of a ninth embodiment of oral hygiene apparatus according to the present invention;

Fig. 21 is a fragmentary plan view of the apparatus shown in Figure 20, the apparatus being illustrated partly in section taken along the line 21-21 in Figure 20;

Figs. 22 and 23 are fragmentary sectional side views of respective embodiments of oral hygiene apparatus according to the present invention which are adapted for cleaning dentures;

Fig. 24 is a side view, partly in section, of a further embodiment of oral hygiene apparatus according to the present invention, in which a reservoir thereof also serves as a cover;

Fig. 25 is a side view, partly in section, of a still further embodiment of oral hygiene apparatus according to the present invention; and

Fig. 26 is a side view, partly in section, of another embodiment of oral hygiene apparatus according to the present invention.

Referring first to Figures 1, 2, 3A and 3B, the apparatus shown therein comprises a casing 1 which contains a hydraulic pump coupled with an electric motor, and of which only external control buttons 2 and 3 are shown. A handpiece 4 is held vertically in a recess 11 in the casing 1, and is connected by a flexible tube 5 to the hydraulic pump. On the handpiece 4 is fitted a spray head 6, and several spare interchangeable spray heads 6a, 6b and 6c are stored upstanding in suitable receptacles 7 in the casing 1.

The casing 1 has a laterally-projecting shelf 12 which is adapted to receive a removable reservoir 8. On one of its lateral faces the reservoir 8 has an overflow slot 125, and on another face a handle 9 is fixed to the upper part of the reservoir for facilitating gripping and carrying the reservoir. A lid 10 is connected by a hinge to the reservoir 8 and has, adjacent the handle 9,

an upstanding projection 10a which enables the lid 10 to be opened by the thumb of the hand holding the handle 9. The reservoir 8 further has, in its lower part, a known type of valve which connects with the pump of the apparatus. A portion 18 of the reservoir 8 which bears against the casing 1 has a projecting profile which fits in a complementary recess in the casing to position the reservoir 8 exactly on the shelf 1a. The shape of the reservoir 8 is such that, when fitted, three of its side faces are flush with and in extension of the corresponding faces of the casing, and the lid 10 in its rest position is in the same plane as the upper face of casing 1. The fitted reservoir 8 and casing 1 thus form a compact unit.

A hollow recess 13 is formed in the upper face of the casing adjacent the reservoir 8 for receiving a removable diffuser or dispenser 14 containing a hygienic product, in this particular example a dentifrice solution, which can be added to the liquid contained in reservoir 8.

A projecting nozzle 15 of the dispenser 14 has an opening 16 thereof directed obliquely to deliver the product into the reservoir 8 when the lid 10 is open. In the depicted embodiment, nozzle 15 bears against the upper face of the casing 1 when the dispenser is placed in the recess 13, and the dimensions of nozzle 15 are such that it does not obstruct the removal or replacement of the reservoir 8, nor the opening or closing of the lid 10 when the reservoir 8 is fitted on casing 1. As variation, this nozzle 15 could be replaced by a duct incorporated in the upper part of the casing.

Figures 4 and 5 show a second embodiment of apparatus which may be used both for brushing the teeth and spraying a liquid. For this purpose, the casing (referenced 20) has four spray nozzles 21 and four tooth brushes 22 stored in parallel rows. A recess 23 of rectangular section is arranged close to the fitted reservoir (referenced 25) and perpendicular to the upper face of the casing, and is adapted to receive a corresponding dispenser 24. An outlet nozzle 26 of the dispenser 24 is directed obliquely towards the interior of the reservoir 25.

The dispenser 24 is in the form of a cartridge or flask, and may even be an aerosol dispenser provided at its upper end with a push-button 27.

Figures 6 and 7 show a form of dispenser adapted to be used in the apparatus of this invention. The dispenser comprises a cartridge 30 which encloses a liquid under pressure or a liquefied gas with the active product, and a plunger tube 31 connected below an opening 32 which connects the interior of the cartridge with an upper chamber 33. A sliding rod 34 having a shoulder 34a passes through an upper wall

of the upper chamber 33, and its lower end has two longitudinal slots 35 which, in the rest position shown in Figure 6, pass through the opening 32. A spring 36 holds the rod 34 in the rest position, in which the product in the cartridge can, as indicated by arrows in Figure 6, pass through the slots 35 into the upper chamber 33. The upper end of the rod 34 is hollow, and is provided with a transfer orifice 37. The upper end of the rod 34 is also capped with a hollow button 38 having an outlet spray orifice 39.

By passing on the button 38, the rod 34 is made to move downwardly against the action of the spring 36 and to penetrate the opening 32, whereupon the non-perforated central part of the rod 34 prevents the passage of liquid from inside the cartridge into the upper chamber 33. Simultaneously, a dose of the product contained in the upper chamber 33 passes through orifice 37 and is released via the spray orifice 39, as indicated by arrows in Figure 7.

Figures 8 and 9 illustrate an alternative form of dispenser which comprises a cartridge 40 provided with a plunger tube 41 having an external, deformable chamber 42 forming a bellows-like push-button, and a ball valve 43. Pressure on chamber 42 pushes a ball 44 against an inlet opening 45 and disengages a spring-biased ball 46 from an outlet opening 47 communicating with a spray nozzle 48. The product contained in the dispenser is thus ejected from the nozzle 48. Upon releasing chamber 42, the valve relaxes under the resultant suction effect and a new dose of liquid fills the plunger tube 41 for the next dispensing action.

In the embodiment of the oral hygiene apparatus shown in Figures 10 and 11, the dispenser (referenced 51) has a height such that its upper face is flush with the upper face of the associated casing (referenced 50) and a lid 52 of the reservoir (referenced 53). Only a push-button 54 protrudes slightly above this upper level, but it could alternatively be in the same plane. The dispenser 51 has an outlet beak or nozzle 58 whose orifice is situated below the level of closed lid 52. A wall 59 of the casing 50 which defines a recess 56 for receiving the dispenser has an upper notch or opening 57 for receiving the nozzle 58, so that the outlet orifice of the latter is directed into the reservoir. An adjacent wall 59 of the reservoir 53 also has a corresponding notch or opening allowing the nozzle 58 to directly face into the reservoir. In this embodiment, it is possible to dispense the product into the reservoir without having to lift up the lid 52. Additionally, the unit formed by the casing, reservoir and distributor has a common flat upper face.

Figure 13 shows an embodiment of the apparatus wherein a dispenser 60 is removably secured on the inner face of a lid 61 of the reservoir (referenced 64). The dispenser 60 has a push-button 62 accessible through an appropriate opening in the lid 61 and a spray nozzle 63 directed into the reservoir 64. As a variation, as shown in Figure 12, the dispenser could be received in a handle 65 of the reservoir, with a push-button 66 thereof provided on the upper surface of the handle to dispense fluid through a nozzle 67 extending through the side wall of the reservoir (referenced 68). Alternatively, the dispenser can be located in one of the walls of the reservoir and can be removably secured to the casing or to the reservoir by any known means, for example a resilient clip, interengaging hooks or the like.

In the embodiment shown in Figures 14 and 15, the reservoir lid and dispenser are provided as a single unit which can be replaced by the user when the dispenser is empty. The dispenser (referenced 69) can be integrally formed with the lid (referenced 70), or may be permanently coupled therewith by conventional means. The lid contains a pair of opposed prongs 71 which can be snapped into opposed recesses 72 in the reservoir (referenced 73). The snap-in feature is obtained by using a material with sufficient resilience for the lid and reservoir, such as any one of many known and conventional plastic materials having such properties. The lid has a central recess 74 through which extends a push-button 75. Depression of the push-button 75 against the bias of a spring 76 opens a valve 77 at the base of the dispenser and permits a solution 78 contained in the dispenser to enter the interior of reservoir 73, as shown by arrows in Figure 15. Release of button 75 permits spring 76 to return the button to its initial position shown in Figure 14, once again closing the valve when the desired amount of solution has been dispensed.

A further embodiment is depicted in Figures 16 and 17. The difference in structure resides in the nature of the coupling of the dispenser to the lid. In place of the integral coupling of dispenser and lid of the previous embodiment where the combined structure is replaceable as a unit, the embodiment of Figures 16 and 17 employs a snap-in dispenser 79 which has a pair of opposing lips or flanges 80 which are adapted to snap into position in a recess formed by receiving hooks 81. The material for receiving hooks 81 is of sufficient resilience to permit the introduction of the dispenser 79 into the position to be held by the hooks. A recess 82 is provided in the lid for the passage therethrough of a push-button 83 which can be operated in the same manner

as described in connection with the previous embodiment. The lid is opened and dispenser 79 is snapped into position whereupon the lid can be closed and solution dispensed by depression of the push-button 83. The solution contained in the dispenser is directed into the reservoir (referenced 84), as depicted in Figure 17.

Figures 18 and 19 disclose a safety embodiment which makes it difficult for anybody, particularly a child, to operate the dispenser several times thereby providing a solution with too high a concentration of additive in the reservoir. When the reservoir lid (referenced 85) is lifted, solution 86 will flow into a dispensing chamber 87 as shown by the arrow in Figure 18. Thereafter, when the lid 85 is closed and a push-button 86' of the dispenser is depressed through an opening 87' in the lid, fluid will be dispensed from the chamber 87 through the open valve into the reservoir (referenced 88), as indicated by arrows in Figure 19. Further solution 86 is prevented from entering dispensing chamber 87 by the presence of a wall 89, so that additional depressions of the button 86' to re-open the valve will not permit any further solution to be expelled since the chamber 87 will have been emptied. To refill the chamber 87, it is necessary to once again open the lid 85 by pivoting it about a hinge 90, whereupon the solution 86 will once again fill the chamber 87 in the manner depicted in Figure 18. The lid can then be closed again, and a further dose of solution in the chamber 87 can be dispensed in the same manner. The solution 86 in the dispenser thus fills the release system only when the lid of the reservoir is lifted. This means that there is a necessary sequence of operations: first lifting the lid, second closing the lid, and third pressing on the button. This makes it very difficult for a child to inject into the reservoir more than the prescribed dose of solution 86. Naturally, there are other means for achieving the same objective, such as the inclusion of a timer, the progressive release of a spring through a bellows system, or the cocking of the release system by mechanical means when the reservoir lid is opened.

Figures 20 and 21 illustrate apparatus for oral hygiene wherein tablets or pills rather than a liquid are dispensed into the reservoir for use. This type of apparatus is desirable where chemicals are presented to the public in a solid form, whether it is in the form of a tablet (effervescent or not), a pill, a powder or a jelly. The dispenser (referenced 91) is mounted in a lid 92 which is attached by a hinge 93 to the reservoir (referenced 94). Tablets 95 are housed within a cylindrical casing 96 which is snapped into position within a receiving

well 97 in the lid 92. Appropriate notches 98 are formed in the walls of the receiving well to receive resiliently snapped-in tabs 99 on the casing 96. The base of the receiving well 97 contains an opening 100 through which each tablet 95 may be dispensed into the reservoir when it is aligned with the opening 100. The casing 96 of the dispenser 91 is rotatable and contains an upwardly extending knob 101 so that the tablets can be rotated in sequence into alignment with opening 100 for dispensing purposes. An appropriate safety mechanism can be employed which allows only one tablet at a time to be dispensed, thereby avoiding the problem of a child dispensing more than one tablet. Rotation is accomplished by application of sufficient force to displace the tabs 99 from the receiving notches 98 and advancing the dispenser casing 96 until tabs 99 align once again with the notches 98 and snap into position. At that time, alignment will be achieved between a tablet holding position and opening 100.

Figures 22 and 23 show apparatuses in the form of respective denture cleaning devices 102 and 103. Both examples include a similar casing 104 which contains an appropriate agitator 105 and a liquid reservoir 106 removably fixed to the agitator and surrounded by an elastic layer 107. In the device 102 shown in Figure 22, the reservoir lid (referenced 108) is hinged at 109 to the casing 104. In contrast, in the device 103 shown in Figure 23, the reservoir lid (referenced 110) is removably seated on the reservoir (referenced 106). In either case, each of the lids 108 and 110 carries a dispenser 111 attached to or integrally formed with its underside. By means of a dosage button 112 which operates in the same manner as in the previously described lid-mounted dispensers, a cleaning or hygienic solution (i.e. chlorhexidine) contained in the dispenser can be introduced into the reservoir 106 which is filled with water and which contains a denture 113 to be cleaned. Each of the devices 102 and 103 is connected by a power lead 114 to a suitable power supply. The agitator 105 is preferably an ultrasonic vibrator, in which case the reservoir 106 must be mounted directly on the vibrator, or can be a vibrator of any other conventional type. A suitable heating device may also be employed.

Figures 24, 25 and 26 disclose a series of devices 115, 116 and 117 respectively which are representative of apparatus which employ a reversible cover to act as a reservoir. In the device 115, the cover (referenced 118) is shown in the reversed position its open side facing upwardly and covered by a removable lid 119. A dispenser 120 is housed on the underside of

the lid and is adapted to be operated by a push-button 121 in a similar manner to that described in rotation to similar previous embodiments. The reservoir 118 is connected to the pump in the casing (referenced 122) in a conventional manner. Appropriate controls 123 and 124 operate the device to supply liquid to the handpiece 125 through a flexible tube 126 in a conventional manner.

The device 116 shown in Figure 25 is identical in structure and operation to the device 115, with the exception of the dispenser (referenced 127). In this embodiment, the dispenser is in the form of a cartridge 128 with a push-button 129. Fluid is dispensed from the cartridge 128 through a nozzle 130 into the reservoir (referenced 131). The dispenser 127 is removably seated in a recess 132 in a base 133 of the casing.

The device 117 shown in Figure 26 operates in a similar fashion, and in this embodiment the dispenser is in the form of a cartridge 135 housed in a receptacle 136 formed integrally with a lid 134 of the reservoir. The cartridge 135 is operated by a push-button 136 so that fluid from cartridge 135 can be dispensed through a nozzle 138 into the reservoir.

All of the apparatuses described above are designed specifically for use in buccodental hygiene, but it is clear that similar apparatuses, possibly merely with appropriate modifications to the spray head, may be used for the treatment of other parts of the body, for example the nose or ears, or for local massages. In this case, the product in the dispenser for addition to the liquid in the reservoir could, as before, be a hygienic product, or alternatively may be a therapeutic or cosmetic product.

WHAT WE CLAIM IS:—

1. Apparatus for personal hygiene, comprising a casing, a reservoir removably fitted to the casing and containing a supply of liquid in use, and a dispenser containing a hygienic, cosmetic or therapeutic product, the dispenser being configured so that it can be detachably engaged with the casing or the reservoir at a predetermined location in which the dispenser can be operated to dispense an amount of said product into the reservoir as an additive to the liquid contained in the latter at least while the reservoir is fitted to the casing.

2. Apparatus as claimed in Claim 1, wherein a recess opens onto a surface of the casing which is an upper surface thereof in use, the recess having a profile which at least approximates to the external shape of the dispenser and being adapted to receive the dispenser removably therein.

3. Apparatus as claimed in Claim 2, 130



well 97 in the lid 92. Appropriate notches 98 are formed in the walls of the receiving well to receive resiliently snapped-in tabs 99 on the casing 96. The base of the receiving well 97 contains an opening 100 through which each tablet 95 may be dispensed into the reservoir when it is aligned with the opening 100. The casing 96 of the dispenser 91 is rotatable and contains an upwardly extending knob 101 so that the tablets can be rotated in sequence into alignment with opening 100 for dispensing purposes. An appropriate safety mechanism can be employed which allows only one tablet at a time to be dispensed, thereby avoiding the problem of a child dispensing more than one tablet. Rotation is accomplished by application of sufficient force to displace the tabs 99 from the receiving notches 98 and advancing the dispenser casing 96 until tabs 99 align once again with the notches 98 and snap into position. At that time, alignment will be achieved between a tablet holding position and opening 100.

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Figures 24, 25 and 26 disclose a series of devices 115, 116 and 117 respectively which are representative of apparatus which employ a reversible cover to act as a reservoir. In the device 115, the cover (referenced 118) is shown in the reversed position its open side facing upwardly and covered by a removable lid 119. A dispenser 120 is housed on the underside of

the lid and is adapted to be operated by a push-button 121 in a similar manner to that described in rotation to similar previous embodiments. The reservoir 118 is connected to the pump in the casing (referenced 122) in a conventional manner. Appropriate controls 123 and 124 operate the device to supply liquid to the handpiece 125 through a flexible tube 126 in a conventional manner.

The device 116 shown in Figure 25 is identical in structure and operation to the device 115, with the exception of the dispenser (referenced 127). In this embodiment, the dispenser is in the form of a cartridge 128 with a push-button 129. Fluid is dispensed from the cartridge 128 through a nozzle 130 into the reservoir (referenced 131). The dispenser 127 is removably seated in a recess 132 in a base 133 of the casing.

The device 117 shown in Figure 26 operates in a similar fashion, and in this embodiment the dispenser is in the form of a cartridge 135 housed in a receptacle 136 formed integrally with a lid 134 of the reservoir. The cartridge 135 is operated by a push-button 136 so that fluid from cartridge 135 can be dispensed through a nozzle 138 into the reservoir.

All of the apparatuses described above are designed specifically for use in buccodental hygiene, but it is clear that similar apparatuses, possibly merely with appropriate modifications to the spray head, may be used for the treatment of other parts of the body, for example the nose or ears, or for local massages. In this case, the product in the dispenser for addition to the liquid in the reservoir could, as before, be a hygienic product, or alternatively may be a therapeutic or cosmetic product.

WHAT WE CLAIM IS:—

1. Apparatus for personal hygiene, comprising a casing, a reservoir removably fitted to the casing and containing a supply of liquid in use, and a dispenser containing a hygienic, cosmetic or therapeutic product, the dispenser being configured so that it can be detachably engaged with the casing or the reservoir at a predetermined location in which the dispenser can be operated to dispense an amount of said product into the reservoir as an additive to the liquid contained in the latter at least while the reservoir is fitted to the casing.

2. Apparatus as claimed in Claim 1, wherein a recess opens onto a surface of the casing which is an upper surface thereof in use, the recess having a profile which at least approximates to the external shape of the dispenser and being adapted to receive the dispenser removably therein.

3. Apparatus as claimed in Claim 2, 130



wherein the dispenser has an outlet nozzle through which said hygienic, cosmetic or therapeutic product is ejected in use, and which, when the dispenser and the reservoir are both fitted to the casing, is directed into the reservoir without obstructing manipulation thereof.

4. Apparatus as claimed in Claim 3, wherein the reservoir has a pivoted lid which, when the reservoir and dispenser are fitted to the casing, can be opened and closed without obstruction by said outlet nozzle.

5. Apparatus as claimed in Claim 2, 3 or 4, wherein the outlet nozzle of the dispenser is formed by a duct in the casing.

6. Apparatus as claimed in any one of Claims 2 to 5, wherein the casing includes a laterally-projecting shelf on which the reservoir is adapted to rest, and said recess is located adjacent the shelf and has such a depth that at least a greater part of the dispenser can be received therein.

7. Apparatus as claimed in any one of Claims 2 to 6, wherein the dispenser when received in said recess lies substantially flush with said surface of the casing, and the casing has a notch therein in which the outlet nozzle of the dispenser is received.

8. Apparatus as claimed in Claim 7, wherein the reservoir has a lid which, when the reservoir is fitted to the casing, is substantially flush with said surface of the casing, and also has an opening in a side wall thereof which aligns with the notch in the casing so that the hygienic, cosmetic or therapeutic product can be dispensed from said outlet nozzle into the reservoir through said opening even when said lid is closed.

9. Apparatus as claimed in Claim 1, wherein the dispenser is received in a handle provided on the reservoir.

10. Apparatus as claimed in Claim 1, wherein the dispenser is formed integrally with a lid which is detachably mounted on the reservoir.

11. Apparatus as claimed in Claim 1, wherein the dispenser is detachably mounted on a lid of the reservoir.

12. Apparatus as claimed in Claim 10 or 11, wherein the dispenser is disposed on an inner face of the lid, and the lid has an opening through which manually operable means is accessible for operation of the dispenser.

13. Apparatus as claimed in Claim 12, wherein the manually operable means includes a push-button which extends through the opening in the lid.

14. Apparatus as claimed in any preceding Claim, wherein the casing includes a laterally-projecting shelf on which the reservoir is adapted to rest, the casing and the reservoir being so dimensioned that, when the reservoir rests on said shelf, its surfaces

are generally flush with corresponding surfaces of the casing.

15. Apparatus as claimed in any preceding Claim, wherein a cover is removably fitted to the casing and is adapted to be turned upside down and re-fitted to the casing to form said reservoir.

16. Apparatus as claimed in any preceding Claim, wherein operation of the dispenser causes a predetermined dose of the hygienic, cosmetic or therapeutic product to be dispensed therefrom.

17. Apparatus as claimed in Claim 16, wherein the dispenser includes dosing valve means which is arranged to dispense equal doses of the hygienic, cosmetic or therapeutic product each time the dispenser is operated.

18. Apparatus as claimed in Claim 17, wherein the dosing valve means acts by means of gas pressure and is controlled by a push-button.

19. Apparatus as claimed in Claim 16, wherein the dispenser includes safety means which prevents the dispensing of more than one predetermined dose of the hygienic, cosmetic or therapeutic product therefrom unless a further operation is first performed on the dispenser.

20. Apparatus as claimed in Claim 19, wherein the dispenser is provided on a pivotable lid of the reservoir, and a predetermined dose of the hygienic, cosmetic or therapeutic product cannot be dispensed from the dispenser unless the lid is first pivoted into an open position.

21. Apparatus as claimed in any preceding Claim, wherein the dispenser is arranged to dispense the hygienic, cosmetic or therapeutic product in the form of tablets.

22. Apparatus as claimed in Claim 21, wherein a lid of the reservoir has a slot therein through which said tablets can be passed, and the dispenser includes a casing which contains said tablets, and which is detachably engaged with said lid.

23. Apparatus as claimed in any preceding claim, further comprising a pump contained within the casing and connected by flexible tubing to a handpiece, the reservoir when fitted to the casing being placed in operative communication with the pump so that the liquid contained therein is supplied to the pump.

24. Apparatus as claimed in any preceding Claim, wherein the reservoir is sized so as to be able to receive dentures therein, and the dispenser in use contains a solution for cleaning or hygienic purposes.

25. Apparatus as claimed in Claim 24, further comprising an agitator in the casing operable to agitate the reservoir when the latter is fitted to the casing.

26. Apparatus as claimed in any preceding



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ing Claim, wherein the dispenser is arranged to dispense a dentrifice material into the reservoir in use.

- 5 27. Apparatus as claimed in any preceding Claim, wherein the dispenser is designed as a unit which can be replaced by a fresh one when the hygienic, cosmetic or therapeutic product therein is exhausted.

28. Apparatus for personal hygiene, substantially as hereinbefore described with reference to the accompanying drawings. 10

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